Co-management strategies for W.A. State Managed Fisheries using the Exmouth Gulf Prawn (Trawl) Fishery as a case study

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2008/059 Co-management strategies for W.A. State

Managed Fisheries using the Exmouth Gulf Prawn (Trawl) Fishery as a case study

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The objectives of this study are:

1. Develop and assess the feasibility of a local co-management governance model for the Exmouth Gulf Prawn Fishery to use as a ‗template' for other W.A. State Managed Fisheries wishing to move to co-management.

2. Urgently identify any legislative amendment imperatives for the W.A. Fish Resources Management Act.

3. Assess the business case for progressing co-management and Marine Stewardship Council certification for this case study fishery.

Non Technical Summary

Virtually all Australian initiatives in the field of fisheries co-management to date have focused on modification to existing management plans for a fishery. With one notable exception, South Australia, primary co-management legislation has not been introduced. The enabling legislation introduced in South Australia focused primarily on the delegation of ministerial powers rather than specifically driving co-management.

Trials in co-management using secondary instruments such as memorandums, policy documents, contractual agreements and instruments of exemptions and delegations, has enabled the progression of a range of fishery operational issues by industry under co-management, however, with limited functional areas for real discretion. The principal policy change decisions requiring legislative amendments remain very much in the hands of government officials and Ministers.

Legislative change is necessary to provide real decision making power for stakeholders to effect fisheries plan amendments. Without primary legislation by Act

amendment, there is unlikely to be any consistency in approach, and much of the detail of decision making and the management processes will remain obscure to other than those actively involved, with little obvious transparency to outside interested parties. The Exmouth Gulf Prawn Fishery ‗case study" provides a local co-management governance model that could be used as a template for other Western Australian Managed fisheries. The approach proposed is based on three primary instruments:

(i) Amendment of the Management Plan for the fishery to reflect the detail of that which remains ‗core" to the creation and retention of fishing rights and the realm of non-discretionary rules for the fishery.

(ii) An instrument of delegation for the purpose of assignment of responsibilities and functions to an industry body, including audit and reporting requirements.

(iii) The issue of policy guidelines which sets out the realm and limits of discretion, policy objectives and performance indicators. These are described for the management of the fishery generally within the objectives of governing legislation and policy and specifically in the operational outcomes for the fishery. A draft policy guideline has been prepared for the Exmouth Gulf Prawn Fishery as a template model for future self management.

Twelve legislative principles for facilitating co-management including self management are prepared as a guide to legislative amendment to the Western Australian fisheries law and potentially for other jurisdictions. Specific legislative amendments to the *Fish Resources Management Act 1994* are proposed.

In examining the ‗business case' for progressing the Exmouth Gulf Prawn Fishery to a self managed fishery, a pre-assessment for Marine Stewardship Council (MSC), sustainable fishery and environmental certification was also undertaken. The summary presented in Appendix 3 facilitated an understanding of information and process gaps to achieving MSC certification and assisted with the preparation of an industry business case. The MSC pre-assessment was able to draw on the material relevant to the issue of an export permit under part 13 provisions of the *Environmental Protection Biodiversity and Conservation Act* (EPBC Act) 1999, particularly for MSC principles 1 and 2. The pre-assessment showed that with modification to consultative and communication arrangements, by ‗re-engineering" decision making and reporting processes, and the updating of fishery stock assessment work, MSC certification could be achieved.

The management of the Exmouth Prawn Fishery was viewed to be in good shape as evidenced by sustainable prawn catches and ongoing export permit approvals granted under the EPBC Act. The management of the fishery has had very effective collaborative co-management arrangements in place between industry and the W.A. Department of Fisheries for many years (Kangas, Sporer, O'Donoghue & Hood 2008). However, there is scope for greater devolution of fisheries management functions to the industry consistent with administrative efficiency and cost effective management. Further exploration of the issues applicable to self management are required before implementation, for example, the legislative amendments required to the *Fish Resources Management Act 1994*, the willingness of government and the minister to devolve executive powers for fishery management plan amendments, and assessment of risks for the management agency and industry should a precedent be established.

The further extension of co-management arrangements in the Exmouth Gulf Prawn Fishery is supported on cost grounds alone. The business case presented estimated that savings of $60,000 to $80,000 per year could be achieved by industry assuming responsibilities for data entry and collection, field surveys and in some aspects of compliance and management. The savings were attributed to the funding model applied by the W.A. Department of Fisheries under cost recovery arrangements and as a consequence of lower marginal costs incurred by M.G. Kailis Gulf Fisheries Pty Ltd, as the sole operator in the fishery undertaking extra in-house services without the need to adsorb additional organisational overhead costs. The latter costs are already met by the company; therefore cost savings can be achieved when activities transfer from government to the industry due to the elimination of attributed overheads under cost recovery.

The business case however for proceeding to ‗self' management without third party environmental certification could not be easily made on costs alone relative to extending existing co-management practices within the fishery. Self management as presented in the business case results in new costs for audit, consultation and other costs linked to communication with stakeholders and implementation of new administrative arrangements, as well as new risks without any identified significant commercial benefit.

A decision to progress with self management for the Exmouth Gulf Prawn Fishery from a cost effectiveness viewpoint could reasonably be made for market and other commercial objectives. The business case for progressing self management with Marine Stewardship Council certification is viable in the event that a price premium in the order of 15 to 20 cents per kilo can be achieved. Whilst this is a business matter for the company involving their judgement on both access requirements to markets as well as the potential for a price premium, the circumstances cannot be compared with the Western Rock Lobster Fishery where no price premium has resulted from certification. Prawns are sold in retail pack form; the company has vertically integrated into the retail market and with the right presentation, a price premium is achievable. Rock lobster on the other hand is usually sold at wholesale and presented to consumers as restaurant meals with little effective opportunity under existing marketing arrangements to extract a price premium. Ultimately a commercial judgement is required.

To progress Marine Stewardship Council certification under existing cost recovery without increasing autonomy under co-management so that industry can deliver a range of management functions under existing cost recovery funding model could be expected to add further to overheads due to the requirements for greater Department of Fisheries servicing. A self management approach represents a better business case from an industry perspective.

Based on the Exmouth Gulf example, a business case for other Western Australian fisheries to progress self management is unlikely to be made on cost effectiveness alone. Individual assessments of the business case for each fishery would be required. These fisheries usually involve multiple operators, varying governance costs and other fishery specific issues that add to the complexity of industry decision making and costs, relative to this case study.

For those fisheries already subject to full cost recovery, co-management de-facto focuses much more on the industry participants' drive for cost reduction through either ―in-sourcing" (co-management services by industry) or ―out-sourcing" the services provided by the Department of Fisheries. Co-management for these fisheries can offer some potential cost benefits to industry.

For those fisheries not subject to full cost recovery, co-management potentially provides a pathway for shifting costs from government to industry. In these circumstances the co-management debate is more about industry achieving other values that arise from co-operative and commercial objectives than cost benefits alone, for example improvements in the quality of service delivery, including benefits of greater industry stewardship. Ultimately this latter conclusion however is dependent on the funding recovery model adopted by the W.A. Department of Fisheries at any particular point in time. These arrangements are currently under review.

The case study suggests that the progression of a trial towards self management should there be market advantages from third party environmental certification is worth pursuing for the Exmouth Gulf Prawn Fishery. Further progression of co-management is recommended.

The development of the case study and this report has added to the understanding of the issues involved in fisheries co-management and legislative requirements for amending the Western Australian *Fish Resources Management Act 1994*. It is also expected to strongly influence the evolution of the development of future management arrangements for the Exmouth Gulf Prawn Fishery.

Acknowledgements

This report has been prepared with the able assistance of co-investigators Mr Stephen Hood and Mr Shane O'Donoghue from M G Kailis Gulf Fisheries Pty Ltd and the W.A. Department of Fisheries respectively.

Members of the Steering Committee listed in the Introduction of this report provided assisting comments and advice during the course of the project. All busy people providing their time freely. Dr Mervi Kangas in particular and Mr Errol Sporer from the Research Division of the W.A. Department of Fisheries made a valuable contribution to the report including incisive comments on the accuracy and content of existing management practices in the Exmouth Gulf Prawn Fishery and for feedback on the details specified in the presentation of supporting evidence for completion of Appendix 3 and 4.

Mr Kieth Van Dongen, the Compliance Manager for the Gascoyne region and Mr Ross Gould, manager for the fishery from the Department of Fisheries also provided valuable input.

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All assistance is appreciated by the author.

Background

The Exmouth Gulf Prawn Fishery in Western Australia is the State's second largest prawn fishery after Shark Bay. In 2008, the fishery became a single operator fishery, with M.G. Kailis Gulf Fisheries Pty Ltd, operating all prawn processing, marketing and licensed prawn fishing boats in Exmouth Gulf. (Background to the fishery is detailed in Chapter 1).

The origins of this case study followed a desire by Mr Stephen Hood of M.G. Kailis Gulf Fisheries Pty Ltd and the Western Australia Fishing Industry Council to better understand the potential for co-management of fisheries in Western Australia. A request to undertake a case study was supported by the Chief Executive Officer of the Department of Fisheries, with a suggestion to include an evaluation of legislative amendments to the *Fish Resources Management Act 1994* that would facilitate future options for extending the principle of co-management including self management. Industry also sought, as part of this case study, advice on the business case for co-management including progressing Marine Steward Council certification for the fishery.

For the purposes of this report ‗co-management', refers to all arrangements where industry under takes some responsibility for the delivery of services or functions which would normally fall within the realm of a fisheries management agency and is covered by the definition expressed in section 1.2. Under this definition however, government would retain management plan amendment decision making.

‗Self management' refers to the specific instance where industry is formally delegated decision making responsibility from the crown to under take fisheries management functions, including contracting out fisheries service delivery functions and management plan amendments, with Government retaining core roles of policy, audit, enactment of legislation, prosecution etc. (see section 1.2). This concept is at the extreme end of a continuum of models progressing through co-management with increased degrees of responsibility and autonomy for industry in the management of their fisheries.

An opportunity exists to assess the potential of self management for the management of the Exmouth Gulf Prawn Fishery and for progressing certification under the Marine Stewardship Council sustainable fisheries processes through a ‗local self-management' governance model that reports to a locally based community advisory committee (Marine Stewardship Council 2008). It is anticipated this new direction in fisheries management would improve the flexibility in real time management, and reduce the burden of management, research and especially compliance and legislative action of the Western Australian Department of Fisheries. Compliance and legislation functions can be particularly problematic, as these could be expected to be core roles of government, particularly prosecution functions which would firmly remain with the crown. In common with other Australian export fisheries, any new governance arrangement under a co-management approach must also facilitate reporting of key performance indicators to meet and gain acceptance of fisheries managers and meet longer term reporting needs of the *Environmental Protection Biodiversity and Conservation Act* (EPBC Act) 1999 and the broader expectation of the community.

The sole operator in the Exmouth Gulf Prawn Fishery has also indicated a desire to eventually progress certification of the fishery under the Marine Stewardship Council for reasons of sustainability and environmental certification and potentially market benefits. The case for certification cannot be compared with Western Rock Lobster Fishery where, to date, no price premium has resulted from MSC certification. Rock lobsters are usually sold at wholesale and presented to consumers as restaurant meals with little effective opportunity to extract a price premium. Prawns on the other hand, are sold in retail pack form; the company has vertically integrated into the retail market and with the right presentation, a price premium is achievable especially in export markets to Europe and United States, where public awareness and concern regarding sustainability and the environmental effects of fishing are high. Ultimately a commercial market judgement is required.

It is also note worthy that much of the information requirements for reporting under the EPBC Act are consistent with Principles 1 and 2 of the Marine Stewardship Council Fisheries certification methodology. The major reporting difference occurs as a result of governance Principle 3 of the Marine Stewardship Council methodology which is not addressed under the EPBC Act.

Need

The case study will provide a strategy for progressing co-management of the Exmouth Gulf Prawn Fishery, as an example for other Western Australian fisheries. It also provides an opportunity to assess the value of co-management, including the opportunity for greater industry autonomy with local self management from the perspective of a business case analysis that incorporates the potential for Marine Stewardship Council environmental certification.
The government has announced that it will shortly be moving to amend the FRMA. Therefore the legislative amendments required to promote co- or self- management that have been identified could provide an early outcome from this study.

For these reasons, the case study had the strong support of the Western Australian Fishing Industry Council, the W.A. Department of Fisheries and the company operating in the Exmouth Gulf Prawn Fishery.

Objectives

This case study of the ~~"~~Exmouth Gulf Prawn Fishery" had two specific objectives.

1. ~~"~~Develop and assess the feasibility of a local Co-Management governance model for the Exmouth Gulf Prawn Fishery to serve as a template' for other W.A. State Managed Fisheries wishing to move to co-management."

2. ~~"~~Urgently identify any legislative amendment imperatives for the Western Australian *Fish Resources Management Act 1994*."

The ~~"~~urgency" of Objective 2 was linked to out of project early reporting to the Department of Fisheries to allow consideration for legislative drafting that is currently taking place. A third objective was added to the study, which was consistent with this project's approach.

3. ~~"~~Assess the business case for progressing co-management and Marine Stewardship Council certification for this case study fishery."

Methods

In order to develop the case study, a small steering committee was established to provide feedback and direction as required to the principal investigator in the development of this report.

Membership of the steering committee included the following persons:

Professor Peter Rogers	Principal Investigator	Murdoch University
Mr Stephen Hood	Compliance & Project Manager	MG Kailis Gulf Fisheries
Mr Shane O'Donoghue	Principal Management officer	W.A. Department of Fisheries
Dr Mervi Kangas	Principal Research Scientist	W.A. Department of Fisheries
Mr John Looby	Manager of Compliance	W.A. Department of Fisheries
Mr Kerry Rowe	Abalone Industry	Abalone licence holder
Mr David Carter	Northern Prawn Fishery	Austral Fisheries Pty Ltd
Mr Guy Leyland	Executive Officer	W.A.F.I.C.
Dr Nick Dunlop	Research Officer	Conservation Council of W.A.

The Committee met formally on two separate occasions to facilitate the development of the case study. Members also provided other advice and input throughout the project.

Chapter 1 provides background information on the Exmouth Gulf Prawn Fishery and co-management, to assist readers not familiar with the fishery or the concept of co-management.

The principal investigator initially focused on providing a

- preliminary Marine Stewardship Council's pre-assessment of the Exmouth Gulf Prawn Fishery under the new standardised criteria released in July 2008, and
- legislative principles required for co-management in the context of Australian fisheries legislation, but more particularly Western Australian fisheries law;
- these two topics are reported in Chapters 2 and 3 respectively, providing insights to the on-going development of processes, principles and performance indicators in the management of fisheries generally and specifically for the Exmouth Gulf Prawn Fishery.

Chapter 4 seeks to report on the development of a guideline' required by a fisheries management agency for the delegation of management responsibility to a co-management body. For the purposes of this case study, the guideline developed has been written specifically for the Exmouth Gulf Prawn Fishery, but the general approach could be extended to any fishery. For those reading this chapter, the guideline approach offers enormous flexibility in style, content and purpose, as it is not binding law, but provides detail on matters or directions that need to be taken into account.

Chapter 5 briefly explores different governance options for a co-management body in the context of the case study.

Chapter 6 provides the basis of extending a business case approach for co-management (in this case to one of ~~-i~~ndustry self-management") for the Exmouth

Gulf Prawn Fishery. The issue for industry being cost effective is one of the main criteria of the assessment.

Chapter 7 draws upon the information and ideas developed in the case study and seeks to extend them into the purview of other Western Australian fisheries and comments on the types of fisheries in Western Australia where various forms of co-management could be usefully developed.

This report effectively delivers the planned outcomes of the research project by:

(i) The development of a template guideline and agreement principles through an instrument of delegation to allow co-management options for the case study fishery to proceed and as an example for other W.A. fisheries.

(ii) The development of a guideline document that provides a performance based structure for co-management, using indicators for sustainability, environmental, economic and social objectives.

(iii) Establishing a set of legislative principles and proposed amendments to the *Fish Resources Management Act 1994* for co-management, including ‗self' management by a management committee.

(iv) Defining structures and processes that facilitate review and reporting arrangements under co-management.

(v) Presents a business case analysis for progressing co-management for the Exmouth Gulf Prawn Fishery, including a pathway for progressing to self management.

(vi) Undertakes a gap analysis of performance reporting and information requirements as a preliminary assessment for Marine Stewardship Council certification.

CHAPTER 1 – Exmouth Gulf Prawn Fishery and Co-management

1.1 Exmouth Gulf Prawn Fishery

1.1.1 Overview

The Exmouth Gulf Prawn Fishery is the second largest prawn trawl fishery in Western Australia. This fishery is located principally in Exmouth Gulf, a marine embayment in the Gascoyne region of Western Australia. The fishery commenced formal management in 1963 and targets principally tiger (*Penaeus esculentus*) and king prawns (*Penaeus latisulcatus*) with a variable quantity of endeavour, banana and coral prawns.

The fishery operates under a detailed and sophisticated management regime and is currently fished and operated by a single company, M.G. Kailis Gulf Fisheries Pty Ltd that owns the majority of licenses for the fishery and now operates all vessels in an integrated catching, processing and marketing operation for the domestic and overseas market.

For the 2008 season, the company operated 9 boats towing either four 5.5 fathom or four 6 fathom otter trawl nets (“quad gear”) harvesting about 1170 tons of prawns worth $13m landed value. All processing of the catch is undertaken at Learmonth; the boats are home ported at the marina in Exmouth with bi-annual maintenance normally undertaken at Fremantle, the home base of the company.

The history of the fishing shows that catches range from 771 to 1276 tonnes from the 1980‘s to the present time. Boat numbers and licences in the fishery peaked at 23 and remained at that number until the early 1980‘s, with the number of licenses dropping to 16 through two licence buy back schemes, the first in the early 1980‘s and the second in 1991. Boat numbers have since been further reduced to 9 as a result of economic pressures in the fishery and consequential unitisation and amalgamation of head rope of entitlements and industry gear with fleet rationalisation, improving economic performance in the fishery.

The Fish Resources Management Act 1994, (FRMA) provides the umbrella legislation for a specific statutory management plan for the fishery.

There exists a detailed set of management arrangements covering area based zoning, closed seasons, fixed and variable closures aimed at protecting nursery areas and managing the harvest respectively, along with a variety of biological controls.

The company itself works closely with the Department of Fisheries in the real-time management of the catch with the objective of optimising catch values whilst ensuring the maintenance of adequate residual breeding stock after fishing to support resource sustainability. The timing and opening of different areas in the fishery are based on field-based consultative process whereby industry and the Research Division, decide on the extent of area to be fished within different areas and when by linking survey data to fishing times spatially, matched with micro fishing arrangements to maximise size of prawns with market requirements and minimising the take of soft shell prawns. The fleet is also managed to gain fleet efficiencies taking into account limits on total fishing time, moon closures and seasonal variances

in catch. The industry also operates industry closures within areas legislatively open to trawling and on occasion restrict vessel catch to assist optimize catch value.

Sustainability is maintained by closure of the tiger prawn spawning grounds on August 1 each year and its subsequent later managed opening and closure linked to maintaining adequate breeding stock levels through catch rate spawning indices supported by survey data and real time catch rate information. Catch rate key performance indicators are used to assist the management of the tiger prawn catch so as not to reduce residual spawning stocks below a critical level (Kangas, McCrea, Fletcher, Sporer, Weir 2006).

The statutory management plan and supporting licence conditions applied to the fishing boat licence facilitate legislative control in the management of the fishery. In summary these arrangements include:-

- Limited licensing of vessels and controls on total trawl net head rope used in the fishery.
- Fixed seasonal closures.
- Areas opened or closed depending upon catch rates and sizes of prawns.
- Tiger prawn spawning closure and a threshold catch rate trigger to cease fishing.
- Season closures based on size of king prawns.
- Protection of nursery areas for prawns and other sensitive habitats.
- Prior to 1983, time closures.
- Controls on gear specification including use of exclusion devices to reduce fish by-catch and minimize or exclude the take of endangered, protected or threatened species.
- Vessel monitoring system (VMS) for monitoring and reporting.
- Voluntary logbook catch/effort reporting system that became obligatory in 2008.

The company separately has in place their own vessel reporting system (Smart Prawn), species composition reporting and quality control monitoring for vessel prawn landings and factory processing as well as an operational code of conduct for skippers and crews. The code of conduct supports the imposition of additional penalties for fisheries management breaches as well as company rules for safety, work practices, vessel maintenance, etc. Any breaches of the code are enforced through employment contracts or share fishing contracts.

The Research Division of the W.A. Department of Fisheries also works co-operatively with the company in undertaking development of management arrangements each season, in season recruitment (including pre-season) and spawning stock surveys and monitor catch rates of prawns for the purpose of sustainable management of particularly tiger and king prawns in a co-management approach. Final decisions for changes to management rules for the fishery ultimately rest with the Chief Executive Officer of the Department of Fisheries or the Minister for Fisheries in accordance with the FRMA and the statutory plan provisions for the fishery.

Prior to 1983, management of the Exmouth Prawn Fishery was simple with limited entry and some gear controls. At the time the Research Division had a logbook and research program in place providing a high level of understanding of the fishing effort and stock status but resistance from industry for management change resulted in overfishing of the tiger prawn stock in the late 1970‘s to critically low levels. In 1983 the Departmental management involvement increased progressively because of resultant poor recruitment of tiger prawns due to overfishing. The Department of Fisheries managed the fishery after 1983 through informal seasonal arrangements prior to the formal Management Plan being implemented in 1989. After the implementation of the Management Plan, informal season arrangements were still developed in collaboration with industry.

Management governance for the fishery was formally achieved through the Exmouth Gulf Management Advisory Committee from the early 1980‘s until early 2001. At that time the Committee was replaced with a joint Trawl Management Advisory Committee (JTMAC), arguably to reduce costs and to cover common generic trawl issues across three trawl fisheries, with the focus of operational management for the fishery shifting to departmental staff and the company management representatives of the fishery. The JTMAC included representatives from the Shark Bay prawn fishery, the Exmouth Prawn Fishery and the Shark Bay Scallop Fishery and a representative from the conservation, recreational, community and the Department of Fisheries.

During the recent two years the peak Committee has not been required to meet. In practice the day-to-day management decision making for the fishery over the last five to six years occurred by mutual agreement between industry and departmental representatives, facilitated by formal decision action by the Chief Executive Officer of the Department of Fisheries within the scope of the plan and within season arrangements. The involvement of the Minister for Fisheries was not required unless a formal amendment was necessary to the Statutory Management Plan or a Ministerial exemption to operate beyond the scope of the plan was required.

The current management practices represents a good example of co-management with decisions made collaboratively between the company and industry.

1.1.2 Status of Fishery

Catch monitoring and research in the fishery, including the collection of log-book information has occurred effectively since the inception of the fishery. This has resulted in a substantial data and knowledge base for the on-going management of the fishery. Assessments of the Exmouth Gulf Prawn Fishery completed in April 2002 and again in October 2007 by the W.A. Department of Fisheries for reporting against the Commonwealth ~~G~~guidelines for the Ecologically Sustainable Management of Fisheries” resulted in exemptions under Part 13A of the EPBC Act. In essence these assessments ~~d~~demonstrated that all the target and by product prawn species are currently being maintained above levels necessary to maintain ecologically viable stock levels”. In summary this means:

- the breeding stock level for the tiger prawn stock in Exmouth Gulf is currently above the original agreed reference point. This referent point has been adjusted for increased boat/catch efficiency.
- the historical catch and effort trends over the past 40 years indicate that there has been no decline in the production levels for king prawns in Exmouth Gulf

which is consistent with there being sufficient on-going levels of spawning biomass for this species.

- historical catch trends indicate that the production levels for endeavour and banana prawns remain within natural environment levels, which is consistent with the recruitment potential of the species having not been affected by the fishery.
- the level of capture of other by-product species by this fishery is too small to have a significant impact on their dynamics (Kangas *et al* 2006) and (Anon. 2007).

Current high catches reported, particularly for the endeavour and tiger prawns in 2008, indicate that these conclusions continue to be valid.

These assessment reports, taken together with the final Fisheries Research Report No 160, 2007 FRDC 2002/038 and various State of the Fishery reports (2002–2008) published by the WA Department of Fisheries provides further invaluable information on the Exmouth Gulf Prawn Fishery, the status of the fishery and the current knowledge on associated issues of by-product, by-catch, habitat, protected, endangered and threatened species within an ecosystem context.

The fishery has in place the use of turtle excluder devices, by catch reduction devices as well as deck water spray catch sorting equipment to optimize catch quality and minimise mortality and take of by-catch. The fishery has no observable fishery impact or risk for protected, endangered or threatened species on turtles, dolphins, whales, dugongs, sea snakes or syngnathids (sea horses and pipe fish) or on by-product species. The habitat in which the fishery operates has been comprehensively surveyed with no significant habit risk as a result of trawling. The impacted habitat from trawling represents less than 40% of the total available similar habitat within the region with no evident differences in by-catch species abundance between trawled and un-trawled areas except in very limited spatial areas. By far the greatest risk for the sustainability of the fishery arises from external events such as cyclones or accidental release of pollution from mining or petroleum activity.

Further assessment of food chain related ecosystem risks are required for adjacent fisheries from an ecosystem perspective but these are judged to be low risk.

These reports including input from the current prawn research personnel from the W.A. Department of Fisheries provided much of the information on Chapter 3 using the Marine Stewardship Council performance criterion and are commented on further in the annexure tables to this report.

1.2 Co-management

Whilst many definitions of Fisheries co-management exist, this paper has adopted the lead taken by the FRDC working group on the topic (Co-management: Managing Australia‘s fisheries through partnerships and delegation, 2008).

–Fisheries co-management: An arrangement, in which responsibilities and obligations for sustainable fisheries management are negotiated, shared and delegated between government, fishers, and other interest groups and stakeholders”.

The term co-management has been used to describe the move away from –top down” often centralised command and control type regulation by government agencies to a principle that permits the establishment of participatory management (Townsend & Shotton 2008) and (MacFadyen, Cacaud & Kuemlangan 2005).

The literature abounds with examples of co-management and covers a wide spectrum of alternative fisheries management models and approaches across a continuum from a centralised command and control framework, across various consultative and collaborative models to forms of delegated decision making where negotiated management decisions for a fishery can be made within an agreed framework (Co-Management: Managing Australia‘s fisheries through partnerships and delegation, 2008, p 2).

Co-management in the broad sense of government partnerships with other stake holders for the purpose of management is not a concept limited to fisheries but extends across all aspects of the natural resource management field. This emerging trend towards increasing participative decision making by stakeholders is not to be confused with community based management practices which is more about local communities being involved in undertaking functions determined by government rather than any delegated decision authority.

This emerging trend towards delegated decision making continues to be supported and presented by the Australian Fishing Industry and FRDC (FRDC Annual Report 2005–2006 p 3).

This trend is driven by, amongst other things, an awareness of resource depletion, industry itself seeking improved cost effectiveness under cost recovery arrangements with fishery agencies, the increasing pressures and complexity of decision making and a desire to minimise conflict and take better account of social, market and environmental values and particularly industry economic pressures, in overall fisheries management decision making. It also recognises the common property nature of aquatic resources and the need to resolve resource allocation issues in a transparent manner. This level of interest in co-management by industry has lead to a number of trials in extending co-management arrangements funded by FRDC within the Northern Prawn Fishery (NPF), the Great Australian Bight Trawl Fishery, the Lake Entrance component of the Southern and Eastern Scalefish and Shark Fishery (SESSF) and the Spencer Gulf Prawn Fishery. These trials having respective government and industry support are commented upon further in chapter 5 of this report.

From an economic and social perspective, it is argued that the concept of cost recovery and the non centralized costs of services and increased application of the user pay concept have focused attention on the need for cost efficiencies and demand for effectiveness by industry in the delivery of services. The prime objective of industry to drive down transaction costs. This in turn has impacted on institutional arrangements incorporating a co-management ethos with industry, to reduce costs, generate greater industry involvement in management decision making thereby increasing acceptance of decisions and sharing risks (Cox 2001).

The emergence of ‗self governance‘ extends the concept of delegated decision making use of existing or new private institutions and expands upon rights – based management by increasing the scope of decisions that are assumed by industry (Townsend & Shotton 2008). The desire for devolution of management responsibility, that is self governance by industry however is tempered by the scope other stakeholders, having a legitimate interest in the fishery, are engaged and the context of both the political and legal environment that shape the opportunities for self governance. In the case of Australia, the attitude of the relevant Commonwealth, State or Territory Fisheries Minister is of paramount importance for legislative change.

Political will is the key to the establishment of co-management and more particularly the progression of self management frameworks. The delegation of Ministerial power is a necessary pre-requisite without which co-management (including self management initiatives) are unlikely to succeed. It needs to be reflected in policy, legislation and action by the Minister and embraced by the staff of the responsible fisheries management government agency, as well as more generally in broader political party and government policy and legislative support. Even with this support, industry itself needs to have the desire, leadership and capacity to pursue and progress their concept of ‗co-management' in the broadly already accepted management advisory committee consultative/collaborative framework existent within the management of Australia's fisheries.

The fisheries management functions that can be delegated to industry are significant and substantial and are covered in detail within the FRDC National Working Group Report – Project No. 2006/068. In total 34 categories of functions were identified as being potentially undertaken by fishers in fisheries administration, compliance, research and development, monitoring and assessment, management planning or communications and extension.

The following functions should always remain the responsibility of government:

- government policy development.
- enactment of legislation.
- initial creation of property rights and authority to fish.
- fisheries access and allocation issues among all fishers and other stakeholders.
- establishment of sustainability performance indicators and controls.
- enforcement and prosecution.
- legislated fee setting.
- audit and compliance with contractual arrangements.
- foreign and international fisheries matters.
- regional and development matters.

While examples of co-management exist in the Australian fisheries case history, there are no known examples of fully extended ―self management" fisheries arrangements in place. Many of the current co-management initiatives operate with limited functional delegations in decision making assigned to industry.

The better canvassed case studies on co-management within Australia focus on the Western King Prawn Fishery in Spencer Gulf (Zacharin, Dixon & Smallridge 2008), The Exmouth Gulf Prawn Fishery (Kangas *et al* 2008); the Queensland Finfish (Stout Whiting) Trawl Fishery (Thwaites & Anderson 2008) and the Tasmanian Scallops Fishery (Haddon 2008). Chapter 5 also provides some information on current case studies being progressed by AFMA and the South Australian Prawn Association in the Spencer Gulf Fishery.

It is with the background of these studies and published papers which this research report is founded as a case study to progress the concept of co-management to that of ~~-se~~lf management" of a fishery and the necessary supporting legislation and instruments to progress the concept.

The essential pre-conditions identified by the FRDC's National Working Group for putting co-management into practice (see pages 19–20 FRDC 2006/2008) being already in place for the Exmouth Gulf Prawn Fishery (see Table 1). This has been achieved through an evolution of management processes of tight management regulations after a stock collapse due to over fishing in the early 1980's to a highly flexible set of collaborative arrangements since 2003.

Table 1
Preconditions for Co-management for Exmouth Gulf Prawn Fishery

***The essential pre-condition are:**	**Current Status for Exmouth Gulf Prawn Fishery**
a willingness by governments to consider alternative management models involving greater shared responsibility	CEO of Fisheries Agency supported study
fishers groups with a significant proportion of members wanting to move to co-management	Single company supports need
identified ~~-c~~hampion/s" who can negotiate effectively with governments and build organisational ownership	Manager of company supports concepts. There has also been a history of Research Division two way communication
an effective fisher organization structure with good governance and an ability to communicate with all fishers and other stakeholders	Not an issue for industry but may require improved mechanisms to engage other stakeholders
a fisher organisation with sufficient resources and skills to implement and delivery services, or an ability to negotiate and attract such resources	Not an issue as a single company
existence of a legislative basis to delegate powers	Sufficient powers exists (see chapter 4) for pilot
ability to generate, and commit to, legally binding undertakings through an MOU, contract or other form of agreement between the parties	Instruments to be progressed by this case study
ability for the fishers' organization to legally enforce agreements through civil, contractual or company law	Company able to enforce other legal requirements
existence of conflict resolution mechanisms	Needs development and is a critical area needing resolution.
****Additional characteristics influencing ease of introduction of co-management**	
clearly specified and legally recognized access or property rights in terms of species, quantity, time and place	Provided by Statutory Management Plan
a fishery with clear geographic boundaries and low by-catch or environmental interactions	Provided by Statutory Management Plan
a well documented and researched fishery, including its ecosystem impacts and dependencies	Export approval under EPBC Act in place
fishers with a common interest in the fishery or similar economic interests in the fishery	Single company operator in fishery
a sound working relationship between the resource user group and government, often demonstrated by the adoption of EMS, codes of practice, or some prior service delivery arrangements	Established long term relationships of collaborative management in place

A further important pre-condition is that there is no identified take of prawns from the fishery by any other sectors, i.e. recreational or indigenous or other commercial fishing operation.

It is with this background of co-management, the operating pre-conditions and effective demonstration of existing collaborative management arrangements already in place for the Exmouth Gulf Prawn Fishery that makes this fishery an ideal case study for advancing self management concepts and achieving greater autonomy. This aspect of the case study is also enhanced by the ongoing interest by MG Kailis Gulf Fisheries Pty Ltd, as the single operator in the fishery to have the fishery certified under Marine Stewardship Council sustainable fishery assessment. In reality it is this need for product accreditation in the market place for its prawn products both domestic and overseas, that could be perceived as the driving force for management change provided. The dual objective under cost recovery management is to improve ongoing cost effectiveness in the delivery of government services and separately, the alignment of management processes of both government and the company to Marine Stewardship Council accreditation and therefore maintaining market access and perhaps better prices longer term. Ultimately a decision to progress with a self management approach requires a commercial judgement on expected risks and benefits.

In reality however, the decision to progress environmental accreditation for the fishery is independent of the decision on further progressing co-management to self management. Objectively, the two issues are separate except that ideally the performance outcomes of both would be enhanced by having common consistent governance arrangements. The business case for each scenario is considered in chapter 6 of this report.

CHAPTER 2 – Marine Stewardship Council Pre-Assessment

2.1 Introduction

This chapter sets out the results of a Marine Stewardship Council (MSC) certification pre assessment of the Exmouth Gulf Prawn Fishery managed under the Western Australian *Fish Resources Management Act 1994*. The Assessment outlined in summary form in Appendix 3 of this report was undertaken in relation to Marine Stewardship Council's (MSC) Principles and Criteria for Sustainable Fishing as specified within version 1, 21 July 2008. The default Assessment Tree and performance indicators and scoring guideposts (PISGs) established by the Marine Stewardship Council are to be used in all future fisheries assessments unless a variation is sought from the MSC Fisheries Director or further refinements are developed.

2.2 The Assessment

The scope of the assessment was aimed at providing guidance on the opportunities for improving co-management performance in the context of the industry seeking MSC certification some time into the future.

The information presented in Appendix 3 specifies at a summary level the 31 performance indicators, the respective –100" level scoring guideposts, the respective information needs, that which is currently available and activities identified to progress the successful certification of this fishery.

In the opinion of the author, the following overall judgment conclusions can be reached

(1) The Exmouth Gulf Prawn Fishery is well placed to go forward for assessment under the Marine Stewardship Councils' Principles and Criteria for Sustainable Fishing.

(2) Before proceeding with a formal Marine Stewardship Council Assessment a number of pre conditions for action are suggested in Appendix 3, which would place the fishery in a stronger position for certification. The more prominent requirements are:

(i) That an updated stock assessment be completed for the 3 prawn stocks under consideration. This assessment needs to take into account newer stock assessment techniques as relevant since the last fish stock assessment was undertaken in 1998. This action will also incorporate recent fishery data into the assessment and further progress assessments of Western King and Endeavour prawn stocks.

(ii) A Research desktop analysis be undertaken to further compile existing information sets and knowledge required for reporting against principle 2 guideposts.[1] Some of these information sets exist in agencies outside of the Department of Fisheries. This will facilitate a stronger enunciation of the existing evidence into a format that will assist with the case for certification. Part of this undertaking should also aim to develop a qualitative ecosystem model for the Exmouth Gulf region within the context of the Exmouth Gulf Prawn Fishery. This is seen as important in establishing a pathway for developing an

[1] (Refer Appendix 3 for statement of principles).

ecosystem understanding for the fishery especially, or in assigning and reaching a more informed view on future risks for the fishery in the context of coastal development, cyclone events and climate change longer term.

(iii) The current management consultative structures, agenda, reporting and decision making processes for the fishery need to be re-designed and re-engineered to more effectively match the guide posts and reporting indicators for MSC certification and improve public transparency and accountability. Such realignment should assist process efficiency and with other reporting needs under the EPBC Act. This could require the replacement of the existing –combined fishery trawl management advisory committee" with a formal local stakeholder based management advisory committee for the fishery working under specific co-management delegated decision making responsibilities by industry through the committee. Whilst this approach brings new costs to industry, the business case warrants examination in the event benefits exceed the costs and does not significantly change risks for industry.

(iv) The ESD Report Series published by the Department of Fisheries on the Exmouth Gulf Fishery (No. 1) and the final FRDC report –Project 2002/038, –Development of biodiversity and habitat monitoring systems for key trawl fisheries in Western Australia provide valuable references for any future MSC evaluation, especially in the context risk assessment evaluation (Kangas, Morrison, Unsworth, Lai, Wright, Thompson 2007). Further development of risk assessment evaluation methodologies by MSC into the future will assist further assist the case for certification beyond mid–2009.

(3) More specific information needs for reporting against the MSC performance indicators can be found in Appendix 3. Many of the suggestions outside of the context of the points outlined above are minor in their resourcing impact.

(4) The Department of Fisheries is progressing a further risk assessment evaluation under the National ESD Framework for Fisheries for the Exmouth Gulf Prawn Fishery as well as a review of management advisory committee guidelines. Any action to reduce consultative role of advisory committees placing more autonomy with industry and the department is anticipated to have some cost benefits.

2.3 Implications for Co-Management

Should final delegated decision making be extended to a –local" industry management committee, this would require the development of a number of policy and or legal instruments under Western Australian Fisheries legislation and could include:

(1) The creation of a –Ministerial policy document" which specifies relevant fishery objectives and respective performance indicators and decision rules for the fishery.

(2) The identification of, scope and agreement to the appropriate functions (management, compliance, research) to be devolved to the co-management process.

(3) The provision of operational guidelines for the management advisory / decision making body defining particularly agenda requirements, reporting, consultative and review procedures, record keeping requirements and procedures to ensure stakeholder transparency, accountability and performance outcomes are met. These operational guidelines should also include an annual and medium term review business agenda cycle matching the requirements for managing the fishery, stakeholder and committee reviews, and external peer assessments on the science and management audit on performance. Quality assurance provisions are critical elements of delegated services particularly in data collection and research.

(4) A system of management, research, compliance and data reporting and verification / audit needs for the fishery to be enunciated and implemented.

(5) Defining a clear set of rules for re-engagement of decision making by the Chief Executive Officer of the Department of Fisheries and the Minister for Fisheries in the event of non or poor performance in meeting the management requirements of the fishery.

Within the context of the above 4 instruments, the MSC evaluation, assessment and reporting needs, along with those under the EPBC Act will need integration with co-management principles and processes.

CHAPTER 3 – Legislation Principles for Co-Management

3.1 Introduction

Under the system of fisheries management in Australia and many other countries, the concept of the public as owners of the resource is well established. Governments via fisheries management agencies or departments adopt a stewardship role in managing the fish resources on behalf of the community. This historical perspective based on many examples of failures in fisheries is built on the view or belief that industry in particular cannot be trusted to manage a public resource due to self interest and often the confounding inability of industry members to work cohesively together towards a common objective.

In more recent times however, as demands on fisheries management have continued to expand along with demands for ‗property rights' and secure access given competing demands for shared resources (e.g. marine protected areas), Governments have encouraged industry to assume greater responsibility for management. This increased responsibility has its origins, in part, in the introduction of cost recovery by Governments and industry consequential engagement towards seeking efficiency and effectiveness in the delivery of services, as well as the emerging debate over which sector, government or industry is best placed to deliver sustainable commercial fisheries.

The concept of fisheries co-management and its role in facilitating industry's direct involvement in management has its origins in this debate.

~~"F~~isheries co-management is an arrangement in which responsibilities and obligations for sustainable fisheries management are negotiated, shared and delegated between governments, fisheries and other interested groups and stakeholders" (see 1.2). Various forms of co-management have operated through out the world and more particularly in Australia, including the Exmouth Gulf Prawn Fishery of Western Australia, for some years.

Whilst the debate on co-management has come to the fore within Australia and a great deal has been written on the topic, there does not appear to be any specific guidance or agenda for legislative reform. If industry was to assume ultimate responsibility for the management of a fishery, there is a need to provide transparency, accountability and responsibility on the co-management body in terms of satisfying the public interest.

For their part, Parliament and the responsible Minister, if they were to extend the responsibilities of fisheries management to an industry body or person, would need to be satisfied with the tests of transparency and accountability.

In the Australian fisheries context, this would require enunciation of various performance indicators for fisheries covering resource sustainability, environment and ecological requirements as well as those for ecosystem integrity that fall within the scope of the EPBC Act; and if sought by industry, other third-party audit requirements such as the Marine Stewardship Council certification. (The latter requirements requiring assistance of government in reporting performance against principle 3 guide posts.) Reporting guidelines and requirements would need to be defined and met along with clarity around consultation processes and governance. This would particularly be the case if decision making powers extended to an industry

body or person delegated management decision responsibilities impacted on individual fisher‘s catch levels.

Third party audit has the potential to ensure that all stakeholders (including the community and conservation interests) gain an adequate understanding of the processes required and outcomes, as well as building confidence in decisions made for the sustainable management of the fishery. From an industry perspective, cost effectiveness is also an important driver for fisheries management, particularly for the small commercial fisheries with little or no interaction with other user stakeholder groups targeting the same fish stocks and having few participant fishers. Often the participants from the smaller commercial fisheries identify co-management approaches as one of the only means they can reduce directly management costs and stay in the business of fishing through taking direct responsibility for data gathering across a range of requirements and being more directly involved in day to day decision making for the fishery. It is also the means by which fisheries management agencies can reduce their direct inputs and therefore costs into managing smaller fisheries, which generally are not cost recovered, coincident with a shift in responsibility to industry.

In developing a framework for legislation, co-management can take many forms across an array of functions, activities and responsibilities. The framework proposed needs to be sufficiently robust to meet all requirements across a co-management spectrum from industry managing data collection and its storage to a corporate body, being ultimately responsible for the management of an entire fishery or group of fisheries. The framework also needs to provide the flexibility for single or multiple stakeholders involved in active management consultative arrangements.

The principles of legislation need to bind a person (or body corporate) assigned responsibilities for management to performance under the objects of the primary legislation, as if they ~~“s~~stood in the shoes” of the Minister or the Chief Executive Officer. To do otherwise risks ambiguity arising from decisions being made beyond the primary scope of legislation. Any delegation granted by the Minister or Chief Executive Officer needs to be well defined, transparent and limited in scope. This assists the person or body to understand their specific role and limits of powers within the primary fisheries legislation. The flexibility provided enables any scope of co-management delegation to be appropriately defined and facilitated on a case by case, by fishery as needs basis.

To assist the process of co-management, desirably written guidelines or directions need to be provided by the fisheries agency, which help to define the scope of decision making, performance criteria and measurement, including reporting needs and timing. These guidelines need to be developed, discussed and in place at the time the delegation is granted, so that the expectations placed on an assigned co-management person or bodies is well understood and are adequately comprehensive to take into account the full range of issues likely to impact on the delegation provided.

In any shift in management responsibilities, there will be issues of a minor nature that potentially impact on the performance of a co-management body and its reporting. Corrective action including taking revocation steps for delegations (as this may neither be desirable or necessary) need to be measured. For this reason it is desirable for directives to be issued by the Chief Executive Officer of the fisheries agency to a co-management body or person requiring corrective action or performance as an amelioration tool. This is expected to facilitate learning experience as industry seeks to develop skills in fisheries management through co-management.

Non-compliance of a directive by enforcing a penalty for not meeting a directive once made sets the grounds for prosecution as well as the revocation of a delegation as and if necessary. Desirably the power for invoking a penalty would need to be incorporated in the primary legislation.

Other minor provisions covering the management of data and other information provided under co-management delegations need to ensure the same levels of confidentiality for data as required of the fisheries agency. They also need to facilitate access and transmission of information between the co-management body (or person) and the fisheries agency.

From a broader government perspective policy consideration will also be needed on how and whether issues such as freedom of information and appeal processes (such as the state administrative appeals tribunal) apply to an appointed co-management body. A co-management body being non government may fall outside the scope of this legislation.

A set of the proposed principles (1) to (11) are listed below:

3.2 Principles for Legislation to meet Co-management Outcomes

(1) The objects of the relevant Fisheries Act need to be modified to ensure that any other person or bodies required to consider the operation or application of the Act, must act consistently with, and seek to further the objects of the Act.

(2) The Minister will need to have the power to be able to delegate a function of power of the Minister under this Act [2] for the purpose of management of a fishery, or part thereof, to:

a. the Chief Executive Officer
b. any other person or body (including a person for the time being holding or acting in a specified office or position).

(3) The Chief Executive Officer may delegate a function or power of the Chief Executive Officer to a Public Sector Employee (including a person for the time being holding or acting in a specified office or position).

(4) A delegation under this section –

a. must be by instrument in writing; and
b. may be absolute or conditional; and
c. does not derogate from the power of the delegator to act in a matter, and
d. is revocable at will.
e. (N.B. Clause (c) allows the delegator to retrieve a situation should circumstances require this to occur).

(5) In legal proceedings, an apparently genuine certificate, purportedly signed by the Minister or the Chief Executive Officer containing particulars of a delegation or revocation under this section, will in the absence of proof to the contrary, be accepted as proof that the delegation or revocation was made in accordance with the particulars.

[2] Refer to the *Fisheries Management Act* 2007 (South Australia) section 3.3.1.

(6) At the time a delegation for the management of a fishery is assigned to a person or body other than the Chief Executive Officer, the Chief Executive Officer should ensure written guidelines have been issued to assist that person or body to meet the obligations of the delegation.

(7) The guidelines as a minimum must specify –

a. the purpose of the delegation;
b. the specific fishery management objectives to be met;
c. the key performance indicators to be measured and reported upon;
d. the requirements for reporting and audit of performance by the delegated person or body;
e. the actions to take place if (d) not met;
f. the scope of discretion in delegated decision making to be exercised or acted upon by the person or body;
g. the time period for the delegation but not more than 10 years for any single delegation, but may
h. any other matter or function pertaining to the management of a fishery, the undertaking of research, compliance, education or data collection of the management of a fishery or part thereof but should not extend to allocation issues pertaining to ‗rights' in existence or pertaining to other stakeholders;
i. in the delegation of management for the management of a commercial fishery to a person or body other than the Chief Executive Officer, permit the Chief Executive Officer to provide guidelines or conditions to be met on stock management, harvest strategies, harvest rules and levels, assessment of stock status, retained species, by-catch, incidental levels of endangered, threatened or prohibited species, habitat structure, ecosystem structure and function, administration, governance or any other matter considered to be relevant for the fishery. These may be modified or amended at any time by formal advice from the Chief Executive Officer through the issue of a duly dated, new guideline.

(8) The Minister or the Chief Executive Officer may issue a Direction in writing to a person or body that has been issued a delegation under section (4) to facilitate improvement in the performance of the management of the fishery or part thereof as provided under section (7) within a specified time period but for a period not more than 6 months.

(9) A failure by the person or body to meet the Direction in writing issued under section (8) within a specified time should constitute an offence.

(10) Any data or information provided to the person or body as a consequence of the delegation assigned, should be available to the Minister, the Chief Executive Officer, or their staff, without limitation.

(11) Any data or information collected by a person or body as a consequence of the delegation assigned should be subject to the confidentiality provisions of the Fisheries Act.

(12) The Minister to have the power to determine and appoint members to a management committee for a particular fishery, to undertake decisions delegated to the committee through the instrument of delegation (see principles 2 and 6).

When considering these principles, it needs to be recognized that statute law, and the derivation of fisheries management plans under the law, has its origin under the Westminster system of government in Australia through the creation of legislation (Acts) by parliament. Subsidiary legislation to the principal legislation in the form of regulations, notices or management plans are normally made by the Minister of the Crown assigned responsibility for fisheries within the Cabinet of the elected government, or Governor in Council. Formal publication of legislation by proclamation within a government gazette has the effect of bringing such laws into operation at a specific time, usually the date of gazettal.

Co-management bodies or persons are not in a position to easily make laws. Any powers for these bodies to assume management responsibilities can only occur through the use of delegated powers issued under the principal Act, or as appropriate by contract law. Before considering further the specific needs of co-management legislation it is worth examining the legislation currently in place within Australia, namely South Australia and Federally.

3.3 Co-Management Legislation

3.3.1 South Australia

(i) The Fisheries Management Act 2007

The Fisheries Management Act 2007 (South Australia) is able to facilitate co-management by a simple number of prerequisites within the legislation.

Section 7 Part 2 of the Act describing the Objects of the Act sets out under 7 (4):-

–The Minister, the Director, the Council[3], the ERD[4] Court and other persons or bodies involved in the administration of the Act, and any other person or body required to consider the operation or application of this Act (whether acting under this Act or another Act), must

(a) act consistently with, and seek to further the objects of, this Act;"

This provision when read with Part 3 – Administration, Division 1 – Minister and Director provides in effect the ability to create a range of co-management instruments through the delegation powers of the Minister.

Section 8, and 10 are relevant and specified below as a complete extract.

[3] —the council" is the Fisheries Council of South Australia. Refer to Part 3 Division 2 of the *Fisheries Management Act 2007*.

[4] The ERD Court means the Environment, Resources and Development Court.

~~8~~ **- Minister**

(1) The Minister has the functions and powers assigned or conferred by or under this Act.

(2) If a document appears to bear the common seal of the Minister, it will be presumed, in the absence of proof to the contrary, that the common seal of the Minister was duly affixed to the document."

"10 - Delegation

(1) The Minister may delegate a function or power of the Minister under this Act (other than this power of delegation) to –

a. the Director; or
b. the Council; or
c. any other person or body (including a person for the time being holding or acting in a specified office or position).

(2) The Director may delegate a function or power of the Director under this Act (other than this power of delegation) to a Public Service employee (including a person for the time being holding or acting in a specified office or position).

(3) A delegation under this section –

a. must be by instrument in writing; and
b. may be absolute or conditional; and
c. does not derogate from the power of the delegator to act in a matter; and
d. is revocable at will.

(4) A function or power delegated under this section may, if the instrument of delegation so provides, be further delegated.

(5) In legal proceedings, an apparently genuine certificate, purportedly signed by the Minister of the Director containing particulars of a delegation under this section, will, in the absence of proof to the contrary, be accepted as proof that the delegation was made in accordance with the particulars."

It is also noted that the only place co-management is specified is within section 16 – Functions of Council, in s.16 (c) ~~to~~ promote the co-management of fisheries."

The combined impact of these provisions allows the Minister under this Act to delegate any number of management arrangements and functions to facilitate co-management by any other person, or body, who is assigned and therefore assumes management responsibility for a fishery, within the scope of objectives of that Act.

The form of delegation and functions provided is limited to the scope of the instrument(s) and ultimately the form it takes, taken together with guidance provided by the Minister in providing both policy direction, the sense of discretions provided and requirements for management performance and audit assessment.

To date, only one instrument of delegation has been issued to allow the Spencer Gulf Prawn Fisherman's association to undertake and manage independent research surveys to assess stocks and determine future fishing season arrangements with the department. For this purpose, an exemption was issued under s.(79) rather than under

s.(10). Section 79 enables the Minister to provide for variations to fishing activity enabling surveys to proceed.

To assist transparency rather than any other reason, the lead powers provided in any instrument of delegation could be assisted by extending the provisions of s.(10) to clarify the type of instrument and its format, particularly for co-management.

To facilitate clarity, it is argued that an instrument of delegation assigning management responsibility of a fishery or part thereof to any ~~-o~~ther person or body" should as a minimum, include fishery specific objectives performance measures and reporting guidelines set by the Minister, the degree and boundaries of any relevant policy decision making and discretion, as well as specification of requirements for audit of management performance. Any revoking of a delegation to a body by the Minister carries with it the risk of judicial review of the Minister's decision by the courts. Guidance on this issue in any instrument facilitates both the review and revoking processes, and clarity of assigned responsibilities.

At the present, it is worth acknowledging the delegation provisions with the South Australian legislation extends much further than co-management per se. However the remodelling of *Fish Resources Management Act 1994* (Western Australian) legislation with similar legislation as that for South Australian focused on co-management approaches is a workable solution.

One of the other key challenges facing full delegation of decision making under co-management is the inability of any other body, other than the Crown, to make legislation. This requires managers to consider, under a co-management framework, how management plans for each fishery need to be structured, so that those parts of the plan not subject to variation are prescribed in statute law whereas those requiring a flexible approach are managed by some other instrument such as a contractual agreement between parties or articles of association by the governing body for the fishery. A good example of this difference is any permanent nursery areas within a fishery which could be prescribed under the fisheries management plan (statute law) and areas open to fishing as seasonal opening and closures that are variable in their timing on a real time basis which could be managed under some other contractual instrument that binds both the fishers (licensees) and the governing body in their management and performance, including compliance. The use of contract law in this example has the side effect of constraining any third parties from challenging the arrangements, as they are not party to the contract.

(ii) Delegation Instrument

To date no delegation has been issued under section 10 for any co-management arrangements in South Australia. The only instrument issued has been an exemption under section 79 of the *Fish Management Act 2007* that practically allows the industry in the Spencer Gulf Prawn Fishery to undertake fishing surveys albeit a form of co-management.

4.3.2. Australian Fisheries Legislation [5]

–There is actually quite limited capacity under the *Fisheries Administration Act 1991* to engage in a delegated model of co-management. The Australian Fisheries Management Authority (AFMA) advises:-- Section 92 of the *Fisheries Administration Act 1991* provides that the Authority may, by writing under its common seal, delegate to,

a) A director of the Authority; or

b) A committee established by the Authority under section 54; or

c) A person employed by the Authority; or

d) A person engaged by the Authority under a contract;

Any of the Authority's powers and functions, except those under sections 47 or 50 (which are sections about things not related to management of fisheries).

While this seems very broad in terms of providing scope for a delegated model of co-management, the *Fisheries Management Act* in subsection 17(11) provides that AFMA may, by writing under its common seal, delegate any powers conferred on it under a plan of management in accordance with paragraph 17(5A)(a) or (6)(aa) to the CEO of AFMA but to no other person. **This is where it gets limited.**

Sections 17(5A) and (6)(aa) are powers to make Directions and Determinations respectively under plans of management. Most key fisheries have plans of management in place. Just about every significant fishery management decision will be a Direction or Determination. For example, most closures, gear specifications, navigation bans, etc are done through Directions and annual capacity settings (TAEs and TACs) and other decisions are done by Determination. Only the Commission or the CEO can make these."

The co-management project being undertaken by officials of AFMA is essentially testing industry capacity to deal directly with AFMA but there are no decisions' being made, only recommendations at this stage. The intention is to test how industry performs dealing directly with AFMA on a range of key recommendations (AFMA will retain responsibility for the decision) and if they demonstrate professionalism and governance capacity, further consideration will be given towards effective legislative change to facilitate effective delegation of powers and responsibilities. As further outline in 5.1 AFMA has been quite innovative in its approaches to this issue.

3.4 Existing W.A. Fisheries legislation and the application of Co-Management

This section of the report considers the existing provisions of the *Fish Resources Management Act 1994* (FRMA) and each of the principles to meet co-management outcomes as listed earlier in this chapter. This action has been taken to further clarify legislative change procedures to facilitate the scoping of new legislation to meet objective 2 of this case study, including the scope for self management.

[5] Source: Mr Steve Bolton, Australian Fisheries Management Authority, personal communication.

Principle 1 Acting Consistently with objects of this Act

The object provisions of s.3 (1) and s.3 (2) a, b, and e, covering conservation, sharing of resources, protection of the environment, exploitation of fish resources in a sustainable manner etc. are sufficiently broad to be consistent with the objects of co-management. Whilst there exists an implicit assumption that any person delegated responsibilities under s.12 must operate in accordance with the objects of the act, the matter is not explicit as is the case under South Australian legislation. For clarity reasons, an amendment under this principle is desirable.

Principle 2 Delegation of Ministerial power to a co-management body

Section 12 (1) of the FRMA allows the Minister to delegate to a person either generally or as otherwise provided in an instrument in writing, any power or duty with some limitations.

These limitations under section 7, 43, 54, 97, 115, 119, 122, 246, 247, 251 and 255 in part impact on the extent of delegations that can be provided. Importantly for the purposes of co-management, these limitations or powers effectively means an appointed co-management body is unable to amend a management plan or issue a prohibition on fishing. Any assigned discretion for a co-management body (including the Chief Executive Officer), needs to be written into the management plan for the fishery and actioned in a prescribed way, to provide effective decision making capability.

Administratively, the Minister can issue guidelines for the purposes of co-management under s.246 to the Chief Executive Officer but there is no specific power to do so to a person or body granted a delegation. Alternatively the Minister may issue policy guidelines generally outside of s.246 and whether this is a practical administrative arrangement is a moot point and is further discussed under principle 6.

Administratively, if delegations were to extend to the full exercise of power under a management plan, provided equity in the rights of access (property rights) were not impacted under changing management plan arrangements, the deletion of s.43 and 54 from s.12 (1) (b) ought to facilitate a more flexible approach to changing management plans. This aspect would need careful consideration by the Minister as it would represent a major shift in responsibilities and functions and open the door to potentially third party drafting of legislation. The necessary checks and balances can administratively be put in place to reduce business risks.

Principle 3 Delegation by Chief Executive Officer

The powers provided under the FRMA under s.13 are sufficient as it allows the CEO to delegate any power or duty under the Act to any person. This includes a ‗corporate body' (Interpretation Act 1984).

Principle 4 Issue of Delegation

Whilst the powers are sufficient under s.12 and s.13 of the FRMA, they are not as clear and explicit as presented under principle 4, especially in the role of the delegator to continue to act in the matter or revoke at will.

For clarity reasons, an amendment under this principle is desirable.

Principle 5 Proof of delegation

Sections 12 (1) and 13 (1) of the FRMA provide for instruments in writing of delegations issued by either the Minister or the Chief Executive Officer.

The Act is silent on the revocation process although there exists an implicit power for this to occur. For clarity reasons, an amendment under this principle is desirable.

Principle 6 Chief Executive Officer to Issue Guidelines

Whilst the Minister can issue policy and policy guidelines generally, the combined effect of s.12 (1) (b) and s.246 effectively enables the Minister to issue policy guidelines in the context of the FRMA which must be considered by the Chief Executive Officer in the exercise of any function under the Act. The powers of section 246 and therefore obligations to consider policy ought to be extended to cover other persons or bodies issued a delegation under s.12 and s.13 and are appropriate where delegations are assigned by both the Minister and the Chief Executive Officer.

In the case of guidelines for co-management, as much of the material proposed within the principles espoused can be technical in nature detailed in form and covering a focused examination of many criteria around a fishery performance, their development ought to fall within the scope of the Chief Executive Officer and not the Minister. The Chief Executive Officer should also be accountable for the ongoing management and reporting of performance by the person or body to whom the function(s) have been delegated.

Whilst it is always open to the Minister or the Chief Executive Officer to issue broader policy papers, consistency with s.246 provisions provides a more significant statement of process and accountability than otherwise might occur. The issue of guidelines at the time a delegation instrument is issued, at least for co-management, is an important part of determining the scope of delegation, performance measurement, reporting and audit as well as providing clarity to all parties having an interest.

Principle 6 needs to be embodied into s.246 of the FRMA to strengthen and broaden this section to allow co-management guidelines to be appropriately specified. The responsibility for issue of such guidelines should lie with the Chief Executive Officer at the time formal delegations come into effect.

Principle 7 Content of guidelines

The FRMA is silent on the content requirements of guidelines issued under s.246 and technically provides full scope to the Minister to write guidelines of appropriate prescription and form provided they are consistent with the primary legislation. Amendment to s.246 to allow the Chief Executive Officer to issue guidelines consistent with principle 7 will provide two key outcomes. First it will provide clarity and accountability for any delegation to a third party, including purposes that fall within the scope of co-management provided under the objectives of the FRMA. Second it will provide minimum guidelines or conditions as appropriate, specifically for the management of a fishery under co-management arrangements, as well as advice on those matters which may be relevant in the management of a fishery. The matters listed under principle 7(i) are consistent with reporting and performance requirements for sustainable fisheries management under ecological sustainable development principles and certification requirements under the EPBC Act and the Marine Stewardship Council.

The issuing of formal guidelines pursuant to legislative provisions ensures certainty of process, reduces the risk of ad/hoc administration, and enhances clarity and consistency on the priority performance objectives of the delegation granted.

Principle 8 Issue of Directions

The FRMA does not provide any provision to issue a formal direction to facilitate performance improvement by a person or body to whom a delegation has been assigned. This principle needs to be incorporated into the legislation to facilitate ongoing rectification of deficiencies in performance as part of co-management delegated responsibilities.

Principle 9 Non-Compliance to a Direction

Consistent with principle 8, for a formal direction to have any effect, non compliance within a specified time should be open to penalty, subject to successful prosecution. This principle needs incorporation into the FRMA.

Principles 10 and 11 Data Management

Section 250 of the FRMA provides for confidentiality of data collected under the authority of this legislation. The confidentiality of records collected from fishermen as research records or as statistical returns within the provisions of the Act by a co-management body under a delegation of powers, needs to be treated exactly the same as if the data were collected by the Department of Fisheries. In order to allow no room for misinterpretation the provision of section 250 of the FRMA needs to be amended to make it explicit that there should be open and transparent exchange of information between the Department of Fisheries at any aggregation of data, including individual‘s records, between the management authority and the person or body delegated a function under this Act. Similarly the confidentiality provisions of the Act applying to any person under this Act should apply equally to any person or body operating by a delegation instrument. Principles 10 and 11 need to be incorporated into the FRMA and be consistent with the same information protection provisions as exists under Freedom of Information. The explicit policy Foundation being the Department of Fisheries is the custodian of the data for the fishery.

Principle 12 Minister to appoint Management Committee Members

The current FRMA provides adequate powers for the Minister to appoint and vary membership to advisory committees for an array of purposes. The Act does not provide for the creation of a management committee, its membership appointment by the Minister or the delegation of decisions for changes to management plans for any fishery by the Committee. Ideally to be consistent with the overall structure and scheme of legislation represented by the Act, any intent to proceed with self management requires explicit Act amendment to remove any risk of legal challenge (refer Chapter 6).

3.5 Proceeding with Fisheries Co-Management in Western Australia without legislative amendment

The question needs to be asked as to whether fisheries co-management could proceed under the FRMA as it stands without amendment? The answer to that question is yes, as there are many functions that could be undertaken within the co-management framework without the need for legislation. Self management (i.e. the full delegation of management decision making) can proceed but only on the basis that the Minister provides effect to any changes in legislation sought by the co-management body or alternately agrees to amend existing subsidiary legislation to facilitate independent decisions on fisheries in the areas of discretion warranted to the management body.

Whilst the current legislation does not provide the ability for the Minister to issue guidelines for a co-management arrangement under s.246, in a practical sense the instrument of delegation issued under s.12 or 13 could feasibly be drafted under contractual arrangements between the delegator and the person or body to whom the delegation is made to meet specified performance, audit and reporting guidelines. Guidelines for co-management could conceivably take the form suggested by principle 7 above and ought to be sufficient to meet the intent of co-management arrangements at least for trial purposes. The guidelines developed would be referred to in the primary contract separating those matters which must be done from those requiring consideration as part of any delegated management decision role.

These arrangements are seen as blunt instruments with effectively the final control of any ~~-s~~elf management arrangement" in the hands of the Minister. Formal adoption of the principles proposed into legislation could achieve both improved consistency and certainty in the way co-management arrangements can be developed with industry or even other parties with the real prospect of shifting many of the operational requirements of real time management of fisheries under delegations to the Chief Executive Officer, other senior officer within the Department of Fisheries and to co-management bodies. This action has the potential to reduce the administration burden from the Minister in the day to day management of fisheries allowing increased time for broader policy.

CHAPTER 4 – Policy Guidelines for Co-Management of the Exmouth Gulf Prawn Fishery

4.1 Introduction

This chapter sets out the thinking and context for the policy ‗guideline' prepared for this case study as detailed in Appendix 4 to this report. This is set down as a Co-management Ministerial Policy Guideline having no particular significance in law and could be used as a policy statement by the Minister. It has been written as if a co-manager body assumed operational management responsibility for the fishery. The document could be varied to meet all prescriptions of co-management including self management if within the scope of the primary legislation.

It is proposed the ‗guideline' drafted for this case study can be used as a ‗template' or as an approach for any other managed fishery in Western Australia where co-management is proposed to be introduced. The purpose of the guideline, issued by the Minister for Fisheries, at the time delegations are issued to a co-management body, is to provide guidance on the various responsibilities and functions to be undertaken by that body.

Like any guidelines issued as a policy statement, the co-management body is not legally bound by the clauses or provisions in the guidelines. There is an expectation however that the matters raised by the Minister would be properly taken into account by decision makers within the context of administrative law. In forming a decision, the co-management body would need to properly weigh up the evidence of matters before it, the issues raised by the Minster and ultimately make a decision which is seen in the best interest of the fishery, consistent with the objects of the primary fisheries legislation.

Clearly no policy guideline, no matter how well written can be expected to cover all circumstances or situations as they change. From experience, one could also expect guidelines to be modified or varied by the Minister from time to time, in the light of new knowledge, experience or changing circumstances within a particular fishery. These various amendments or re-issue of guidelines, need to be properly synchronized in time to ensure that the full portent of the ‗correct' guideline over time is used by the decision maker. That is, the relevant correct guideline is considered at the time of any decision.

4.2 Structure of Guideline on the Case Study

The guideline as presented in Appendix 4 has been prepared in four tiered parts.

The first section provides an overview of Western Australian fisheries policy and operating context within which the guideline operates. For the most part this broad set of policy prescriptions apply to all managed fisheries operating within Western Australia and would form the relevant introductory information that a co-management body would need to be cognize of, in managing the specifics of the relevant fishery.

Section 4.1.5 of Appendix 4 sets down precisely the outcomes to be delivered by the co-management body and represents the ―corner-stone" performance outcomes required from that body. All of this introductory section, other than section 4.1.5, has been drafted to align with a common template.

The second section focuses on management objectives for Western Australian fisheries and sets down the higher level objectives for fisheries. Again this provides relevant context for any generic template on co-management and section 3 which describes the specifics of the fishery.

The third section, which is designed to be specific for each fishery, describes the fishery and treats, in detail the operating objectives and performance indicators. In this case the specifics are described for the Exmouth Gulf Prawn fishery. These aspects of the template would need to be developed and varied from fishery to fishery and when linked to section 4.5, provides a powerful structure on the performance outcomes required for the fishery and therefore matters on which a co-management body's performance could be assessed.

The final tier as attachments to the guideline provides other background documentation, definitions of terms and relevant reference material for the information of the co-management body. This in turn facilitates understanding with the co-management body as well as other stakeholders interested in the fishery.

4.3 Linkage of Ministerial Guideline to Delegation Instrument

To date, no delegation instrument has been issued by the Minister under s.12 (1) of the FRMA in Western Australia.

In a practical way, the instrument could take the form of a contractual agreement between the parties that is the Minister and the co-management body.

Embodied in the agreement to allow effective connection between the guidelines and the delegation instrument are those matters of operating objectives and performance indicators which are the substance of the functions to be performed and obligations arising from the delegation, the period of the agreement, rules for variance of the agreement (if relevant) and revocation of an agreement.

Whilst such instruments can be excessively detailed, ultimately the success of co-management arrangements including those of self management needs to be built on trust between the parties. As 'trust' is key to success in co-management between the parties, the simpler the 'head agreement', the better.

For the case example guideline presented in appendix 4, the following inclusions into a delegation instrument are proposed:

(1) The instrument of delegation provides a term of 10 years.

(2) The Co-management body, in making decisions under the delegation, takes into account the matters described by the Minister (or Chief Executive Officer should the Act be amended) in the co-management guidelines (or as amended) issued for the Fishery from the date of the agreement.

(3) The Co-management body should act on any direction issued by the Minister on the management of the fishery within the time specified by that directive.

(4) The Co-management body should undertake the various functions and actions as required to achieve the outcomes.

(5) The Co-management body should take both the responsibility and necessary action to facilitate achieving all outcomes as prescribed under 4.1.5 of the

Ministerial Co-management Policy Guidelines for the Fishery (see Appendix 4). These outcomes to be listed in the instrument to ensure enforceability as an obligation.

(6) The Minister is obligated to maintain the right of final decision making but not take action to revoke the instrument of delegation at anytime except in circumstances of failure of performance by the Co-management body in managing the fishery or failure to act within reasonable time on any direction issued by the Minister to the Co-management body. This right of decision making held by the Minister could also extend to significant ‗unusual events'.

When read together, the delegation instrument and the Co-management Policy Guideline provides a sufficient balance of contractual requirements and prescription ‗guideline' direction and therefore policy flexibility, to allow ‗self management' by a Co-management body to proceed. Ideally as seen in Chapter 3, amendment to legislation would improve enforceability of obligations covered by agreements.

This mixture of delegation instrument and Co-management Policy Guidelines provides a sufficient basis and design flexibility to allow any variant for co-management arrangements for fisheries to be adequately described.

CHAPTER 5 – Governance Options for the Exmouth Gulf Prawn Fishery

5.1 Introduction

As discussed in section 1.1.1, management governance of the Exmouth Gulf Prawn Fishery has historically moved away from a formal management advisory committee process to one of collaborative cost effective decision making at mid-management level between the Department of Fisheries and the industry.

This somewhat informal arrangement, whilst effectively working to meet real time management requirements leaves the exercise of decision making firmly in the hands of the Chief Executive Officer of the Department of Fisheries and in the event of requiring formal amendment to the management plan for the fishery, the Minister for Fisheries.

Resourcing issues and a lack of priority for legislative amendments to the management plan, has meant that some of the ‗formal' management arrangements for the fishery are given effect by Ministerial exemptions to the management plan.

Whilst this arrangement works effectively for industry and the Department of Fisheries, there is little transparency to other external stakeholder interests in the practical detail of the management plan or the day to day operations of the fishery as management decisions are made.

At face value, this has not caused an issue for the Department or industry with little or virtually no complaint from the community. The ‗State of the Fishery' annual reporting provides sufficient information to parliament and the community along with the scrutiny provided by departmental reporting needs under the EPBC Act for sustainable fisheries management performance for the fishery. These assist with maintaining community confidence and acceptance in these processes.

Arguably the arrangements facilitate flexibility in ‗real time' management for the fishery and are mutually acceptable to the principal parties to this arrangement, with minimal management costs.

Any shift in management direction to progress the management of this fishery into a concept of self management, and third party environmental accreditation (as described in section 2.1) requires a change in governance arrangements.

In the case of third party environmental accreditation, an alignment of governance structures and processes desirably would see the current across-trawl fisheries management advisory committee replaced with a small locally based management committee.

The proposed structure as one option is an independent chairperson, two representatives from the fishery, one person representing the Exmouth regional community, one locally based person having interests in conservation; and one person representing the Fisheries Department. The requirement for an indigenous or recreational representative was not considered necessary as neither stakeholder groups actively operate in the fishery or directly impact on the prawn stocks. The role of this suggested committee is primarily to align the business of the committee to objectives and reporting needs of third party environmental accreditation and performance requirements with ongoing ‗real time' management of the fishery. In this model, independent advice from the Research Division of the Fisheries Department would be pivotal to the committee's ongoing success.

As suggested in this case study (refer chapter 6), a decision to progress to a ‗self management' model offers little significant benefit from extending co-management arrangements unless it is linked to an outcome of third party environmental accreditation. Whilst this can still occur within existing management arrangements, higher costs will be incurred.

The establishment of a fisheries' management committee within the concept of full self management is without precedent in Western Australia and possibly Australia. The power to create such a committee does not exist within the Western Australian *Fisheries Resource Management Act 1994* but as discussed in Chapter 3 of this report; it is possible to proceed with a ‗trial' self management concept with the support and trust of the Minister for Fisheries and the company. Ideally, the power to appoint a management committee needs to be incorporated into legislation. In considering the appropriate structure for an interim management committee the following matters are relevant.

(i) Membership of the committee – For reasons already specified, an Exmouth locally based committee comprising an independent chair, two industry representatives and one community and/or conservation representative was considered sufficient. An equally acceptable option could be an independent chairperson who also represented local community interests, a company representative and a conservation representative. The inclusion of a management departmental representative was not deemed necessary under this arrangement. The committee would still require advice from the Research Division, Department of Fisheries on the basis core services of research continue to be sourced from the Department.

The Department of Fisheries involvement in management under this model would be one of policy overview and audit without active day to day responsibilities. Compliance prosecution arrangements would continue to remain with the Department.

The management decisions of the committee would prevail under the terms and conditions set down by the Minister for Fisheries in the delegation instrument. Under the trial the Minister by legislative necessity would continue to have the ultimate decision on changes to the management plan.

(ii) Governance - In order to protect members of the committee from personal liability risks three entity options are considered.

These are:

(a) a legislative model
(b) an incorporated (not for profit) association
(c) a private limited liability company.

Prior to considering the merits of these three options it is important to distinguish between two types of management decision making. The first relates to management decisions for the fishery and second those decisions required for service provision by ―industry" within a co-management arrangement. These roles are distinctly different. In the latter case, the role of increasing company responsibility for provision of services within a collaborative – co-management model for the Exmouth Gulf Prawn Fishery does not require any specific action as the fishery is operated by a single company. A change in entity is not necessary to affect increased industry responsibility for service provision in the management of the fishery presented in this case study. Issues of compliance both in terms of the fishery and staff could effectively be managed by the company without the risks of conflict and acceptance in circumstances of multiple ownerships of licenses that often exists within other fisheries. The

discussion under these options, focus primarily on the role in making fishery resource management decisions requiring changes to the management plan.

(a) Legislative Model.

The current structure of the *Fish Resources Management Act 1994* does not contemplate the Minister devolving any of his decision making responsibility for fisheries management plans to a single entity. It can be argued, noting the long term ‗stewardship' responsibilities held by government (The Crown) for fisheries, that the exemption powers of section 4 of the FRMA Act were primarily intended to provide flexibility in coping with short term needs of fisheries management and not the full transfer of fisheries management decision making powers. In fact the scheme of arrangements under the legislation limits the creation of committees to one of an advisory role. The powers of delegation by the Minister as specified under s.12 (1) also prevents the delegation of decisions around management plan amendment or their creation.

Reading the Act in its entirety, one could consider the structure and form of committees appointed has a general presumption of having appropriate membership reflecting stakeholder interest in a particular fishery with its composition determined through the discretion of the Minister by an instrument of appointment.

To extend management decision making for a fishery to a third party is a significant step and one might expect that for this to occur, the Minister would need to be in agreement with not only the scheme of the arrangements (covered by chapters 3 & 4), but also the final management committee membership.

Desirably, whilst this view is open to interpretation and debate, an amendment to the *Fish Resources Management Act 1994* to provide for both appointment of management committees and the appropriate protection and limits on personal liability for decisions its members make (at least equal to the Minister) is warranted.

This action would remove any doubt from the structure of the Legislation, that the transfer of management plan decision making and plan amendment to a management body falls properly into the scope of the Minister‗s powers.

(b) Incorporated (not for profit) Association

Section 4 (1) of the *Associations Incorporations Act 1987* Western Australia, enables an association to be incorporated if it has more than five members and the purpose of the association is not aligned with profit. Section 4 (4) (b) provides for an association to be incorporated where ”the association is established for the protection or regulation of same trade, business, industry or calling in which members are engaged or interested, if the association itself does not engage or take part in any such trade, business, industry or calling, or any part or branch thereof.”

Whether a ‗not for profit' association is a useful vehicle for a fisheries management body hinges on two issues. The first is whether the ‗profit' motivation of an industry membership effectively disqualifies the use of such an association as an entity for ‗delegated' fisheries management decision making and second, the ability of an association representative of, say, license holders in a particular fishery, to retain control if broader representative stake holder membership in management decision making for the fishery was required.

In the first situation, if in doubt, eligibility for incorporation falls within the scope of the commissioner (s.4 (1) (f)) and is not considered further. The second issue depends very much on the design of the constitution and whether it is feasible to attract differing classes of

membership for different stakeholder interests (e.g. Industry, conservationists, the community, etc.) and define an appropriate committee structure that addresses the differing membership requirements of the Minister of the day. There are also the risks of control or loss of it and attracting adequate non industry membership, for the entity to maintain credibility.

The use of an Incorporated (not for profit) association where membership is common (e.g. license holders only in a particular fishery) with the prime purpose of shared service delivery for the co-management of a fishery is however a workable solution for that purpose, as long as the purpose falls within the scope of s.4 of the *Associations Incorporation Act 1987.*

However an amendment to fisheries legislation to enable the Ministerial appointment of a management committee for a fishery would provide greater certainty and therefore acceptability.

(c) Incorporated Company

An incorporated company governance model theoretically provides substantial scope in the design of board appointments, voting rights and the issue of various classes of shares to meet the requirements for adequate stake holder representation, accountably of management decision making and the delivery of agreed services within either a co-management fishery framework or with legislation amendments, a self management fishery governance framework.

The ability to appoint an independent chair and independent directors, as well as those directly aligned to the shares held in the fishery (license owners) provides the opportunity (with good will) and the support of the Minister (by mutual agreement through delegation) to further progress co-management arrangements under this governance entity.

With relevant legislation amendments proposed, design elements in the Articles of Association could be developed to the point the ‗company' as the delegated body, could effectively be the manager/decision maker as well as for this entity, the provider of agreed services. The notion of not for profit is no longer an issue for this entity with the scope of decision making bound principally by the instrument of delegation, co-management guidelines issued and defined industry management obligations to be delivered.

Such a company governance structure as proposed is hardly relevant for the case study of the Exmouth Gulf Prawn Fishery due to both cost and simplicity arising from single company ownership and more particularly ease of self compliance. This would not be the case for a fishery such as the Shark Bay Prawn Fishery where the company governance arrangements over multiple license holders may be a critical element of increasing co-management or ultimately self management arrangements.

Again whilst the concept of a company governance model for a ‗self' managed fishery is plausible, the suggested legislative approach of placing and separating the management committee appointment and processes from that of business arrangements between industry and government, that facilitates improved co-management and arguably improved cost effectiveness, is simpler to communicate, differentiate and likely to be more politically acceptable. The legislative approach is certainly more transparent for external stakeholders.

5.2 Other Fisheries Case Examples progressing Co-Management

5.2.1 Commonwealth Fisheries

The Australian Fisheries Management Authority is trialling co-management in Commonwealth Fisheries. The trials cover three fisheries; the Northern Prawn Fishery (NPF), the Southern and Eastern Scale Fish and Shark Fishery (in the port of Lakes Entrance) and the Great Australian Bight Trawl Fishery (Anon. 2009b).

The aim (or subset thereof broadly) of each of the trials is to:

- Engage industry in the business of fisheries management and administration and/or the delegation of fishery management functions
- Develop more cost effective and efficient business practices
- Improve AFMA relationships with industry

As specific legislation is not in place to address processes for co-management, trial co-management arrangements have been developed using a variety of instruments.

In the case of the NPF, a Memorandum of Understanding (MOU) outlining a non binding understanding of the co-management arrangement purpose between the Australian Fisheries Management Authority and NPF Industry Pty Ltd (representing licence holders in the fishery) was signed by the parties (Anon. 2008a) and (Anon 2009b). This instrument is supported by a Co-management Policy specifying details of the arrangements between parties that include:

1. Background	Focus of the Co-Management trial.
2. Purpose of the Policy	The shifting of operational matters to fishing industry bodies linked to a policy of rationalisation of MACS.
3. Legislation and NPF Management Plan	Linking legislative objectives and responsibilities of primary legislation and management plan to decision making.
4. Recommendation making	Outlining principles and procedures for decision making.
5. Scope of functions of which NPF Industry Pty Ltd will assume responsibility	A description of specific functions to be undertaken.
6. AFMA‘s responsibilities	Specify the management agencies responsibilities and discretionary scope in decision making, including the roles of the Commission and NORMAC.
7. Communication	Specifies the need for regular communication on issues of significance.
8. Resolving differences	Specifies decision rules for resolving conflicts.

9. Performance measurement and evaluation	Specifies performance evaluation criteria for the trial.
10. Consultation and reporting structure	Specifies pathways and responsibilities for consultation and reporting at various stages of decision making taking into account timeframes.

The MOU and the Co-Management Policy, read together effectively provides a structure for AFMA to deal directly with NPF Industry Pty Ltd with respect to decision making on commercial and operational matters in the fishery, leaving broader policy shifts for NORMAC, AFMA and ultimately the Commission. The other elements of co-management i.e. catch and effort and observer information management and crew-number observer program management are implemented through a separate commercial contract as an ‗in-sourcing' industry business arrangement. In addition there also exists a NPF code of responsible fishing guiding industry practice. Proof of concept and performance is yet to be established for co-management (including some decision making) but is not largely different to that which is proposed in the report for the Exmouth Gulf Prawn Fishery in the form of an instrument of delegation and supporting policy guidelines. The more significant differences lie in the detail.

The contractual arrangements devolving responsibilities for certain functions to the NPF Industry Pty Ltd was commercial in-confidence. Governance within the company was achieved through voting rights of licence holders and level of representation linked to unit holdings held by licensees in the fishery. At face value this approach to industry representation as shareholders and appointment of positions to the board seems appropriate. An Association Model was not adopted for the industry body for reasons linked to issues in representation (including rights) held in the fishery and an industry desire for greater flexibility in management of business risks as a result of commercial decision making. It also allowed the industry body to undertake other commercial activity including group acquisition of packing material, product promotion and other commercial opportunities outside the scope of co-management fisheries management services within the fishery. [6]

In the case of the Lakes Entrance Co-Management Trial, AFMA has again developed a MOU of the purpose for the trial. In this instance, the trial is focused on streamlining data management and quota administration through a code of practice with the Lakes Entrance Fishermen's Cooperative Ltd (a fish receiver) and individual fishers operating out of Lakes Entrance. The MOU in this instance is signed by all interested Lakes Entrance fishers with SESSF concessions and the Lakes Entrance Fishermen's Cooperative Ltd (fish receiver). (Anon. 2008a).

The code of practice developed in 2008 for the 2008/2009 season was updated in May 2009 for the 2009/2010 season (Anon. 2008b, 2009). The MOU also sets down a list of offences and penalties to be trialled as a voluntary penalty code graded by a combination of administrative penalties, court based prosecutions and on the second offence, exclusion of operators from the trial.

[6] Jarret, A. Chief Executive Officer NPF Industry Pty Ltd, personal communication.

The structure of the Lake Entrance code of practice like the Co-Management Policy for the NPF provides a similar structure of background, the trial, purpose of the code of practice, principles under the code, obligations under the code, performance indicators and assessment as well as specific needs relevant to the fishery and the trial being undertaken.

Industry governance under the arrangement does not require any specific industry body as the obligations clearly occur between AFMA and individual parties to the MOU.

The Great Australian Bight co-management arrangement, which at the time of writing was not final, focuses on industry playing a leading role in the research, stock assessment and monitoring programs for the fishery. A draft formal co-management arrangement with Great Australian Bight Industry Association (GABIA) has been developed that provides:

a. GABIA to take a lead role in monitoring and stock assessment planning and TAC setting in the fishery.
b. GABIA providing advice to AFMA on operational matters in the fishery (as per the initial proposal);
c. Continuous covering of catch against quota (as per Lakes Entrance trial);
d. An integrated data collection program involving on-board scales, e-logs, electronic reporting of landings and auditing. This also includes 100% reporting of quota species discards, improved reported estimates of by catch and the collection of economic information to support MEY estimates;
e. A product traceability program; and
f. A vessel operational manual.

The co-management arrangement will be implemented through a MOU.

5.2.2 The Spencer Gulf Prawn Fishery

The background to Spencer Gulf Prawn Fishery and co-management is well documented (Zacharin *et al* 2008). Current work is proceeding in examining alternative models for the commercial fishing sector to be delegated greater responsibility for management such that industry

- manage the resource assessment process and develops harvest strategies
- manage all at sea operations of the fishing fleet
- develop explicit allocation of resources between sectors (McShane 2009).

Areas of co-management the Association has specifically taken on include tasks under ‗Harvest Strategy', Spot Surveys, a few tasks of research and most tasks under the ‗Observer Program'. Under existing arrangements, governance is achieved by a Management Committee comprising an independent Chair, seven licence holders and a skipper representative. Sub committees are understood to manage the business of the Association for cost recovery, research and advising on spatial closures (committee at sea). Costs are recovered from licence holders by levies from members.[7]

[7] Note: Not all fishing licence holders are members.

Three models are currently being evaluated including the status quo, a delegated model Spencer Gulf Prawn Fishermen‘s Association and a fully delegated model: stakeholder governance.

The major difference between these options focus on governance, the processes for collection of costs by the Association and shifts in responsibility for day to day operational management to strategic management.

A delegated model provides for principal control of fisheries management arrangements, the management of harvest strategy development and the conduct and reporting of research by the Association. The body representing Spencer Gulf and West Coast Prawn Fishermen‘s Association (the Association) under the delegated co-management model, assumes responsibility for management of the fishery on behalf of all licence holders. Free riders are removed by ensuring all licence holders meet costs (McShane 2009).

The fully delegated model results in the Association being augmented by a stakeholder representative board. The Board being responsible for governance including establishment of appropriate sub-committees, legislation advice, policy making, the conduct of research (including facilitation of contestable services) and annual reporting. Formal management arrangements under this model are delegated by the Minister from PIRSA Fisheries to the Board.

Whilst pro‘s and cons for each of these models are being considered by the Association, implementation beyond the status quo is yet to proceed. The likely pathway is expected to be incremental.

CHAPTER 6 – Business Case for Extending Co-Management in the Exmouth Gulf Prawn Fishery

6.1 Introduction

Cost recovery arrangements for fisheries in Australia and New Zealand are now accepted practice. Within Western Australia, such arrangements have been in place since 1995/1996 and continue to apply for all costs incurred by the Western Australian Department of Fisheries in the provision of services for designated fisheries. The costs that are recovered included the costs of management, consultation, research (including data collection) and compliance.

Full specification of these costs for the Exmouth Gulf Prawn Fishery can be found in Table 6.1 for the financial years 2006/2007 and 2007/2008 with budget estimates for 2008/2009. By any standards the costs for the management of the fishery are low, representing 2.8% of the total value of landed catch for 2007/2008.

The fisheries subject to full cost recovery within Western Australia include the Western Rock Lobster Fishery, the Shark Bay Prawn Fishery, the Shark Bay Scallop Fishery, the Abalone Fishery, the Pearl Industry and the Exmouth Gulf Prawn Fishery.

Examination of the data in Table 6.1 indicates the major drivers for costs in the fishery are direct salaries for the various activities linked to the management of the fishery which in turn drive directly overhead costs attributed towards an activity both centrally as well as through divisional organisational structures for the Department.

Under the Western Australia Department of Fisheries business model for total recovery of costs for a fishery, overhead costs of administration and central services are attributed across all of its services, including the fully cost recovered fisheries and other commercial fisheries as well as the programs for recreational fishing, pearling and aquaculture, and fish and fish habitat programs, not subject to cost recovery.

Within this business model, it is therefore not surprising, when examining institutional charging arrangements, that any shifts in direct activities towards industry subject to full cost recovery undertaking the work directly, by assuming greater co-management involvement or operational self management responsibilities, resulted in savings being realized. This remains the case unless new costs are introduced. This is principally due at least for this case example to the overhead costs of an organisation (in this case the company) being sunk (already met). The shift in cost from the Department to the company is at the marginal direct cost, i.e. it does not include department allocated overhead costs. Defining those overheads to be borne by a management committee under self management arrangements depends on who provides the services, the company, the co-management body or the Department.

In considering the business case for the further extension of co-management or for self management of the Exmouth Gulf Prawn Fishery, a review of costs and activities at each of the major cost centres was undertaken. These are reported in 6.3.1, taking into account the issues and risks identified by Departmental officers during discussions. Departmental officers also had the opportunity to review and comment on the text and cost estimates, prior to finalisation of this analysis as reported.

TABLE 6.1							
					COST RECOVERY 2008/2009 ALLOCATED BUDGET		
20600101 Exmouth Prawn Compliance	**06/07actual $**	**06/07budget $**	**07/08actual $**	**07/08budget $**	**08/09 HRS**	**08/09 $**	Industry Costs ($) 08/09
10010B B-Wages&Salaries	20,249		14,068		380	19,302	
1501–16114communications	7,523		4,608				
17610B B-Consumables-Fuel&Oil	0		0		0	3,400	
19210B B-R&M-Plant, Equip&Vehicle	0		0		0	300	
21010B B-Travel-Staff Related	1,256		244		0	2,703	
6000 Regional - Central Support_Hourly Alloc Costs	1,338		1,124		0	6,220	
6000 Regional - Directorate_Hourly Allocated Costs	427		753		0	1,026	
6000 Regional - Gascoyne_Hourly Allocated Costs	33,796		22,680		0	21,539	
Adjustment	767		95				
EXMOUTH PRAWN COMPLIANCE	**65,356**	**108,515**	**43,572**	**59,452**	**380**	**54,490**	**4,000**
20600102 Exmouth Prawn Consultation							
10010B B-Wages&Salaries	746		609		20	840	
12510B B-Other Emp Related Expenses					0	500	
16110B B-Contracted Svc-Prof and Adm	638				0	750	
21010B B-Travel-Staff Related	301				0	650	
21710B B-Rates&Charges					0	50	
22010B B-Advertising&Promotion					0	800	
6000 IFM_Hourly Allocated Costs	239		528		0	846	

EXMOUTH PRAWN CONSULTATION	**1,924**	**7,027**	**1,137**	**4,429**	**20**	**4,436**	**1,000**
20600103 Exmouth Prawn Management							
10010B B-Wages&Salaries	21,000		13,193		300	17,872	
12510B B-Other Emp Related Expenses	0		0		0	500	
21010B B-Travel-Staff Related	0		1,168		0	650	
21710B B-Rates&Charges	0		0		0	150	
6000 Corporate Services_Hourly Allocated Costs	0		36		0	0	
6000 IFM_Hourly Allocated Costs	12,763		9,119		0	12,690	
other overheads	521		1,589				
EXMOUTH PRAWN MANAGEMENT	**34,284**	**39,651**	**25,105**	**35,073**	**300**	**31,862**	**8,000**
20600104 Exmouth Prawn Sustainability							
10010B B-Wages&Salaries	107,711		93,000		2,800	122,345	
10110B B-Allowances	2,836		5,628		0	6,218	
12510B B-Other Emp Related Expenses	0		3,519		0	400	
15010B B-Communication Svc	0		0		0	1,400	
15510B B-Freight&Mail Svc	56		0		0	200	
17510B B-Consumables-General	73		24		0	550	
17610B B-Consumables-Fuel&Oil	32		15		0	1,150	
18610B B-Minor Equipment Acquisitions	0		65		0	500	
21010B B-Travel-Staff Related	20,737		14,595		0	15,000	
21510B B-Catering&Catering	0		0		0	300	
22010B B-Advertising&Promotion	452		780		0	400	
22110B B-Op Lease, Rental&Hire Costs	1,559		2,622		0	6,000	
39710B B-Miscellaneous Other	44		456		0	0	
6000 Research_Hourly Allocated Costs	121,562		102,194		0	119,196	
EXMOUTH PRAWN SUSTAINABILITY	**255,062**	**304,913**	**222,898**	**342,820**	**2,800**	**273,659**	**9,000**
EXMOUTH GULF PRAWN	**356,626**	**460,106**	**292,712**	**441,774**	**3,500**	**364,447**	**22,000**

Note 1: Industry costs do not include commercial vessel operations for field surveys conducted by the research group. These costs remain irrespective of changes in the management model.

Note 2: Industry costs represent current internal company expenditure presently spent in support of Departmental functions as presented.

6.2 Budget Analysis

6.2.1 Exmouth Prawn Compliance

The total cost of compliance has continued to decrease over the last 3 years reducing from $65,356 in 2006/2007 to a projected figure of $54,490 in 2008/2009.

Activities in the cost centre over the last 2 years have been separated into 5 areas: Vessel Monitoring System (VMS), pre-season inspection, investigation and inspection, prosecution and various advice/management and licensing roles (see below).

In past years prosecutions for breaches have not been significant (1 per year) with several infringements issued for administrative offences, including failure to notify the relocation of vessel monitoring system equipment from vessel to vessel in the company fleet. The company also operates its own penalty system for breaches of Fisheries legislation under its employment code of practice.

Table 6.2

Allocation of Activities as Percentage of Total Compliance

Costs	2006/2007	2007/2008
VMS	7.5%	14.5%
Pre-Season Inspection	11.5%	0%
Investigation & Inspection	31.75%	34.75%
Prosecution	2.75%	7.75%
Other		
Advice (inc. Education)	13.0%	20.0%
Management	24.75%	16.50%
Licensing	2.00%	2.5%
Maintenance	6.75%	4.00%

Under the code, breaches for entering industry ‗closures' results in financial penalties and breaches of legislated nursery ground closures can result in loss of employment. Breaches of fishing licences or illegal take of by catch including for private use can also result in dismissal under company rules.

Two areas of activity were identified as potential opportunities for cost saving. The first area relates to the use of VMS. In effect this system allows the independent monitoring of vessel movements operating in the fishery. The current system provides for variable polling of vessel automatic locators (ALC's), down-loading of vessel movements and through monitoring software, real time alerting of vessel operators in breach of closures (mainly nursery grounds) in the fishery.

All company vessels in the fleet also have an inbuilt monitoring system called Smart Prawn that can be down-loaded daily to provide ―track" recording of vessel movements. It is evident that both systems are capable of providing vessel track history. Data from Smart Prawn was identified by researchers as ―useful' in understanding trawl tracks.

The principal issues standing in the way of reducing expenditure on ‗VMS' in lieu of a duplicate system, focuses on the ―independence" of VMS as a compliance tool and the ‗risk' associated with tampering with ‗Smart Prawn' track records to avoid prosecution. This risk could be assessed.

There is also the cost savings of industry not having to meet the capital expense of VMS locators and associated installation costs if a decision to use Prawn Smart was adopted representing a further saving of about $10,000 annually to industry.

The second area of direct savings relates to the time spent by compliance staff in the provision of advice to crews and skippers to the fleet on a range of issues including licensing, fishing rules and by catch management. All of this service provision could be provided in-house, particularly if crew fishing licences could be issued on-line by the Department of Fisheries through their Website. Pre-season staff briefings by the company already occur. Effective liaison between compliance staff and the company should be able to address all related management issues for skippers and crews on an on-going basis.

Noting the high level of compliance in the fishery, the ability to increase management coverage and reporting of breaches linked to employment policies, there exists the scope to reduce Departmental lead fisheries compliance activity related to this fishery by between 40–60% representing, a cost saving of $21,800–$42,700, depending on assumptions within the 2008/2009 budget context.

6.2.2 Exmouth Prawn Consultation

The cost of consultation is directly linked to the operations of the joint trawl MAC (refer section 1.1.1). This committee has not met for 2 or more years and is currently not expected to become active. Current budget estimates project costs of about $4,400 per annum.

There was virtually no identified additional savings from extension of existing co-management arrangements. These costs could be expected to increase in the event a ―self management" committee being established comprising community and industry representatives (refer chapter 5). Additional costs of $10,000 per annum were projected as required by industry to meet this increased governance requirement. This would provide sufficient scope for about 3 formal meetings per year and would be consistent with a meeting program to meet consultative and management needs of an independent environmental accreditation program for the fishery, as well as administering ongoing fishery management committee decision making and audit management decision requirements.

6.2.3 Exmouth Prawn Management

The cost of management relates principally to the operational expenditure and time commitment by a designated management policy officer to undertake direct policy, advice and liaison functions for the management of the fishery including the operational aspects of providing support for Ministerial and Departmental advice and decision making functions, facilitating legislative amendments, progressing correspondence for both departmental and Ministerial replies related to the fishery. The role also facilitates budget and liaison requirements with industry, reviews fishery performance and undertakes various reporting functions for the fishery both internally and externally in accordance with EPBC Act and Departmental reporting requirements. The role is pivotal in coordinating agency roles in various divisions of the department, to facilitate the fisheries management performance, perform administrative requirements for the fishery and negotiate budgetary and fee structures under cost recovery.

The total cost for this function in 2008/2009 is projected to be approximately $32,000.

Any increase in co-management responsibility by industry is expected to have little impact as virtually all of these roles and responsibilities will continue to operate. However, in the event of self management, a great part of these various roles and responsibilities would need to be assumed by the management body, reducing both the work load and responsibilities of the departmental management policy officer. Overall liaison and reporting to Ministers and other government bodies would continue to be a core role but matters pertaining to the management of the fishery, administrative arrangements and external liaison, and reporting outside of government ought to become the role of the Management body or their executive officer.

Estimated cost shifts under a self management body is expected to add a further $20,000 to industry costs whilst reducing direct management costs under cost recovery by $10,000 or less.

6.2.4 Exmouth Prawn Sustainability

The major Department of Fisheries cost driver for this fishery relates to data collection, analysis and ongoing stock assessment evaluation together with field survey work to support on going management of the fishery, together with broader research and reporting needs. The value of this work cannot be under estimated particularly as much of the research facilitates evaluation of fishery performance on a real time basis, with industry seeking to maximize value per recruit whilst ensuring performance requirements around sustainability, harvest strategy and adequate protection of the breeding stock is achieved.

Estimated expenditure for the cost centre in 2008/2009 is estimated to be $273,700 or about 75% of the total cost recovered budget for this fishery.

An analysis of activity in this cost centre during 2007/2008 demonstrates approximately 45% of total research expenses are attributable to field work covering a minimum of 6 separate surveys using commercial trawlers to measure recruitment and breeding stock indices and other data relevant to the management of the fishery. A further 10% of the cost is attributable to data entry and validation processes[8].

The remaining attributable cost (45%) funds on-going assessment of the fishery meeting the costs of senior research and technical staff including efficiency and effectiveness in data collection, analysis and interpretation. The activities include the following:

- Measurement and assessment of shifts in fishing power and harvest strategies over time.
- Reviewing shifts in effort distribution, swept area, calculation of and changes in recruitment and spawning indices relative to changing dynamics in the fishery, including environmental, harvest and technology changes, both short and long term.
- Transforming data into a form that facilitates ongoing stock assessments, including parameter estimating of nominal and effective effort and as required formal stock assessments.
- Measurement, reporting and understanding implications arising from fishing impacts on by product, by catch, protected endangered and threatened species, habitats and consequential trophic and ecosystem outcomes.
- Facilitating data aggregation and annual reporting of relevant biological indicators for the fishery covering the key Ecological Sustainable Development principles, reporting to the –State of the Fishery" and reporting and facilitating the meeting of permit conditions of the Commonwealth, under the EPBC Act 1999 as relevant.

[8] M Kangas. W.A. Department of Fisheries Personal Communication 27/2/2009.

- Evaluation and analysis support for provision of science advice to industry, the Department and Government on issues impacting on the fishery and its management, as well as on external development proposals that can impact on the performance of the fishery or its sustainability.
- The maintenance and updating of a significant data set that forms the basis for management and science understanding of the fishery and environmental data collected from 1963 to the present day, with a range of other biologically relevant information and data.

In examining the attribution of these costs, it is argued a substantial part of data entry, data collection and field survey work could be performed by a person independent of the department. This could feasibly be done under an extended co-management model or a self management approach. The additional direct costs to industry are expected to be in the order of $70,000 to $100,000 with a saving of about $100,000 to $80,000 respectively through cost recovery due primarily to a lower attribution of overheads. (refer Table 6.3)

It is also apparent that shifts in year to year activity between field operations particularly in research including data entry and core research impact directly on the level of total cost attribution. Recent activity data reported for 2008/2009 show a lower level of field work (35%), data entry (11%) and increased core research (54%)[9]. These impact by reducing overall savings to $60,000–$80,000; annually, depending on the degree of field work required by Departmental research staff to maintain quality data standards. A lower figure to offset some of the training support costs and ensuring quality data could reduce the range of the savings closer to $60,000 value estimate. The level of ‗savings' that can be achieved is strongly impacted by the number of field visits by current research staff to Exmouth. Each additional field trip will reduce the level of savings by approximately $15,000.

Should alternative stock assessment and support research services be available independent of the Fisheries Department, risks for the industry and the Department would be increased. These risks are further discussed later in this chapter.

6.3 Summary of Business Case

6.3.1 Annual Operating Cost Issues

Table 6.3 summarizes the projected Department costs from the 2008/2009 budget for this fishery and incorporates 2 options for further consideration. Option 1 relates to the assumption that self management does not occur, but attempts to identify the savings flowing from industry taking greater responsibility for compliance, conducting field surveys and associated data collection and electronic entry to the Departments data systems. That is extending existing co-management arrangements.

Option 2 is built around a local management committee assuming responsibility for direct management of the fishery (refer chapter 5), with some core compliance functions including VMS and research services remaining with the Department of Fisheries. Additional costs of consultation and management by industry under the self management model and projected research costs for the Department and therefore cost recovery for the fishery are provided for each option. Additional costs for consultation and audit are incorporated in this cost comparison.

[9] M Kangas, W.A. Department of Fisheries. Personal Communication 18/6/2009.

TABLE 6.3							
Cost Comparison between Co-Management and Self Management							
	08/09	Greater Co-Management Option 1				Self Management Option 2	
	Cost Recovery Budget	Increased cost to industry	Residual D of F costs	TOTAL	Increased cost to industry	Residual D of F costs	TOTAL
Compliance							
VMS	7901	-	7,901		-	7,901	
Investigation & Inspection	18,935	-	18,935		-	18,935	
Prosecution	4,223	-	4,223		-	4,223	
Other	23,431	10,000	0		10,000	0	
	54,490	**10,000**	**31,059**	**41,059**	**10,000**	**31,059**	**41,059**
Consultation	**4,436**	**-**	**4,436**	**4,436**	**10,000**	**2,000**	**12,000**
Management	**31,862**	**-**	**31,862**	**31,862**	**20,000**	**10,000**	**30,000**
Sustainability							
Fieldwork	123,146	49,000	-		49,000	-	
Data entry/validation	27,366	11,000	-		11,000	-	
Core Research functions	123,147	0	123,147		0	123,147	
	273,659	**60,000**	**123,147**	**183,147**	**60,000**	**123,147**	**183,147**
Independent audit						20,000	20,000
Total Exmouth Gulf Prawn Costs	**364,447**	**70,000**	**190,504**	**260,504**	**100,000**	**186,206**	**286,206**

Examination of Table 6.3 shows in real terms, there is little difference in total industry costs between the self management option and the extended co-management alternative, where industry assumes more direct service responsibilities. The major identified saving of around $80,000–100,000 annually is principally a consequence of direct reduction in indirect ~~-a~~gency-wide" Departmental (attributed) over head costs by the equivalent employment of skills and services ~~-in~~-house," with some limited direct cost savings and cost shifts.

At face value this makes extending co-management the preferred option especially with industry assuming increased risk for self management with no obvious commercial benefit.

The costs presented in Table 6.3 for self management (option 2) do not include any new costs in external consultative requirements, independent risk assessment, research or management required additionally for maintaining third party environmental accreditation or implementation. These new costs are expected to be additional to the work already scoped within existing cost structures as presented for the fishery. The extra expense could be in the order of $100,000 annually or higher with a number of scenarios presented in Appendix 5 that incorporates both implementation costs and annual estimate of new expenses adding to the base costs represented in Table 6.3.

In the event much of the new services for environmental certification are under taken by the Department rather than Industry, they will attract even higher overhead attribution costs and cause the case for environmental certification to be even less attractive. To progress Marine Stewardship Council certification without increasing autonomy for industry to deliver a range of management functions under existing cost recovery funding model could be expected to add further to overheads flowing from the requirements for greater Department of Fisheries

servicing. A self management approach represents a better business case from an industry perspective.

The inclusion of both implementation and new operating costs to environmental certification would have the effect of making option 2 costs neutral to existing cost recovery arrangements but more likely cost negative.

The more significant benefit from the self management approach is the alignment of a local small management committee to drive management processes towards third party environmental accreditation, assuming market benefits are achievable (Refer 6.4).

To progress such an initiative within the Department of Fisheries due to overhead cost attributions will add to costs and potentially may not get the same industry support for environmentally driven outcomes which they (the industry) could achieve by helping to drive the ownership of the process. The main benefit from the industry perspective are potentially improved market access, improved image‘ as a ~~-s~~elf managed” fishery having third party environmental accreditation, and ultimately at the retail market, a price premium. After all, a price premium at the retail market of each 10c per kg could add an extra $80,000 to the bottom line profitability, assuming chain of custody costs is not excessive. How successful such an approach could be, whilst beyond the scope of this project, is very much dependent on the company‘s ability to capture any perceived benefit at the end of the market chain directly from consumers within the domestic and overseas markets.

6.3.2 Risk Issues Identified

There were a number of risk issues raised by different participants consulted in this case study.

None of the issues raised are insurmountable but some may be significant and are listed here together with a proposed mitigation response. These risks need to be addressed by management in the event of proceeding with increasing co-management or self management.

Risk 1.
The quality of research field data collected during field survey collections declines, potentially putting at risk the accuracy of the key performance indicator for sustainability. This includes the ability to retain comparative data sets over the long term for the standardised surveys conducted. This long term data set are critical in assessing trends in stocks and makes this risk extremely high. There is also the possibility existing research and technical staff and the historical knowledge base and understanding of the fishery is lost and existing staff lose touch with field interpretation of fishery and biological information and data.

Mitigation 1.
Addressed by management through continued in-field training of staff, liaison with and occasional field trips by research and technical staff actively participating in quality control. This cost will need to fall within the scope of cost recovery. Participation in one or two key stock assessments and within season exploratory surveys is required. Implementation training costs could be reduced by allowing training of company personnel in the adjacent Shark Bay Prawn Fishery at the same time research staff undertake field surveys.

Risk 2.
The maintenance of a single industry field position has operational risks for critical field surveys due to absence of key staff due to ill health, accidents or other unplanned vacancies.

Mitigation 2.
Addressed by management through training of additional industry staff members or in an emergency, if experienced staff at the Department of Fisheries are available, by meeting the additional cost of deployment by factoring an appropriate contingency estimate in the budget. Currently up to five trained people (research and technical officers with appropriate scientific qualifications and training) are available.

Risk 3.
The appointed person responsible for field data collection as a company employee is directed to other duties with the consequence of data loss, lack of timely data or critical research information.

Mitigation 3.
Contractual performance requirements in job specification as well for line managers can effectively eliminate the risk provided management recognises and accepts responsibility. Failure for the delivery of required data needs to be an accountable performance requirement.

Risk 4.
Failure by ~~"M~~anagement" to address fishery risks from ~~"o~~bserved" decline in recruitment and spawning indexes.

Mitigation 4.
Company managers need to be made accountable for their performance in maintaining the objective outcomes of the fishery especially those relating to resource sustainability and maximising value. Any arrangement for ‗self management' comes with the codicil that ~~"d~~irections" could be issued by the Chief Executive Officer of the Fisheries Department to correct any management action that risks sustainability. Ultimately this includes rescinding of powers of ‗decision' making by the Minister for Fisheries.

Furthermore under the business options examined the Research Division has retained the key advice role on the ongoing status of the fishery. This ought to make the risk low but the consequence from ~~"o~~ver exploitation" in reduced catch is high.

Risk 5.
The removal of VMS opens the risk for abuses of fishing in closed waters and creates a perception that there is no effective accountability for compliance.

Mitigation 5.
The Smart Prawn system needs to be assessed by Department of Fisheries' compliance personnel to determine whether the risks of evidence tampering are significant and whether a daily monitoring and recording system could be developed to sufficiently manage that risk and provide evidence for prosecution. Perceptions can only be managed by information, education and building trust between parties matched with supporting evidence of a low level of external reporting of industry breaches; and performance by the company management in prosecuting offenders under business rules or by referrals to Fisheries officers where breaches of Fisheries legislation are known to take place.

From a risk perspective the penalty for abusing the privilege of largely self compliance is the re-instatement of total cost recovery of all services and the increased costs and higher surveillance that comes with that loss of privilege.

Risk 6.
There is a change in company ownership, management, key personnel or all three.

Mitigation 6.
Communication of expectations to new ‗parties' on any existing management arrangement is an obligation that must be met by all involved.

6.3.3 Implementation Issues

There is no single pathway for adoption of self management or the extent to which co-management should be implemented for this case study. This is a matter of final negotiation between the parties. On the evidence presented thus far however there is a common sense approach which at face value provides an acceptable pathway through which the parties could proceed. Ideally progression further down the co-management route or to self management requires a detailed risk assessment jointly by all parties to identify any major risks including assessment of the level of political acceptance before proceeding.

Once satisfied the following steps are proposed:

Step 1.
Proceed with greater co-management responsibility for field survey and data collection and self compliance under the following premise:

- The company appoints a field research officer to assume all responsibilities for data collection and as warranted the majority of field data survey collection.
- The person appointed assumes all responsibility for pre season briefings, inspection of vessel nets specification and gear requirements for compliance with fisheries legislation and licence requirement.
- The person undertakes agreed data entry and submission of such data to the Research Division of the Department of Fisheries.
- The person down loads daily fishing data from Smart Prawn for both submissions to the company and to the Department and audits for fishing area breaches.
- The person undertakes liaison function between relevant company management staff and with key compliance and research staff within the Department of Fisheries.
- The person facilitates ongoing development and negotiation of steps with the Department of Fisheries to place it in a state of readiness for self management. These include relevant updating of the management plan to reflect current industry practices in the fishery eliminating the need for exemptions; assisting with as necessary the completion of research requirements to place the fishery in a readiness for independent third party accreditation (refer Appendix 3 of this report).
- The person works with the management of the company and the assigned manager of the fishery within the Department of Fisheries under existing arrangements to facilitate real time decision making for management of the fishery in consultation with the Research Division of the Department of Fisheries.
- Facilitates the potential use of Smart Prawn to electronically transfer logbook data to the Research Division, Department of Fisheries.
- The person facilitates a review of Smart Prawn as an alternative to VMS in co-operation with the compliance members of the Department of Fisheries.
- The person in consultation with Department of Fisheries specifies audit requirements for effectiveness of data collection and quality as well as evidence of compliance effectiveness.

Step 2.
Negotiate with the Department of Fisheries and Senior Management of the Company, the final arrangements for self management including the details of the agreement with the Chief Executive Officer of the Department.

This can be modelled on the principles and guidelines modelled in this report. The decision to proceed with this step ultimately depends on the willingness of the company to proceed, which in turn cannot be assumed. Third party environmental accreditation can be achieved under co-management arrangements but at higher costs. It will be ultimately a judgement of both the Board of M.G.Kailis Gulf Fisheries Pty Ltd and the Minister for Fisheries as to their willingness to proceed. Whilst this report may assist the process of decision making, the role of the Minister is pivotal and is very much dependent on the degree of trust and confidence in the self management model and the willingness to release power to a third party not representative of the Crown. The business case as presented does not make a compelling case on cost savings alone as much of the benefit is more about community and market perception and its intrinsic value to the company. The major cost savings can substantially be achieved through moving down the continuum of co-management.

Whilst legislation is inadequate for full progression to self management, as discussed earlier in chapter 4, substantial progress on ~~t~~esting" the concept could be progressed subject to the willingness of the Minister to proceed.

Step 3.
Upon concurrence of step 2, the following preconditions need to be met for successful implementation of the self management model.

- Establishment of management advisory body and appointment of members to that body.
- The formal issue of an instrument of delegation by the Minister for Fisheries to the advisory management body (refer 4.3).
- At the time of signing the delegation, the issue of Ministerial Co-management Guidelines for the Fishery (refer Appendix 4).
- Detail of audit requirements and program for the fishery.
- Agreed cost recovery budget arrangements for the fishery.
- Issue of a Ministerial exemption to those sections of the Exmouth Gulf Prawn Fishery management plan that fall within the scope of proposed decision making by the appointed advisory committee. (In the first instance, the scope of decision making would be restricted to varying industry closures for managing the industry fishing strategy within season and the scope of research lead recruitment and breeding stock surveys).

The practical effect of the Ministerial exemption would be to remove the elements of area closures and openings to fishing within the management plan outside the scope of the plan allowing the committee to take decisions using company directives to manage fishing operations.

The successful completion of steps 1 to 3 as proposed above is expected to take two years given existent workloads of key personnel in the Department of Fisheries. The key requirements to be met are up dating of the Exmouth Gulf Prawn Fishery management plan and the formal completion of the stock assessment for the fishery consistent with the end objectives of extending co-management or progressing to self management and independent third party environmental accreditation. These costs do not form part of the business case between the options as these need to be updated in any event as part of appropriate governance under the existing management arrangements for the fishery.

There will however be extra consultation; agreement and guideline development that will require additional up-front implementation costs estimated to be in the order of $30,000 to $40,000 for progressing co-management with a further $40,000 to be spent in meeting the preconditions expected in step 3. These additional costs even if under estimated have little impact on the business case presented unless for some reason they become exceptionally large.

The delayed time frame for implementation will also facilitate the further development of trust between the parties in the collection of field research and skills development for the proposed newly appointed company field research officer who could potentially become the executive officer to the suggested management committee.

6.3.4 Outsourcing of All Research Services

The issue of outsourcing all research services outside of the Fisheries Department was briefly considered noting three quarters of the existing costs for management of this fishery occurred from services provided by the Research Division.

At best this was considered a high risk as there was not a well developed alternative fisheries stock assessment service operating within Western Australia. The university sector has the ability to provide such a service should the demand be established.

The associated cost savings with having an independent group providing advice could be difficult to realise due to the tyranny of distance and/or the need for the Department to satisfy itself that independent assessments were well based. The strategy also has the potential to increase costs from both duplication of assessments and reporting as well as higher requirements for audit performance. To date, the company has supported the provision of what has been an effective service for many years, with little appetite for change in this particular service provision beyond the changes already proposed. The company also benefited from the sharing of costs and experience from having a dedicated trawl research group across several Western Australian managed prawn and scallop fisheries. For these reasons, this option has not been fully explored within the context of this case study.

With the successful introduction of self management this issue could be revisited particularly if key personnel in research were to leave the Department and access to data from the fishery, including historical data sets could be readily achieved and on-going. These aspects are likely to be subject to separate policy considerations.

6.4 Investing into Greater Co-management or Self Management

The data from Table 6.3 can be used in Net Present Value calculations to assess the value of the business case and sensitivity around the assumptions concerning a decision on whether to proceed with either of the scenarios presented. The calculations applied examine the cost savings estimated from the base cost, i.e. the 2008/2009 budget and take account of the implementation expenses in progressing with greater co-management or self management plus in the latter case, any benefit from increases in prawn market value derived from third party environmental accreditation. This latter aspect is on the assumption that a decision to proceed to self management is contingent on changing the effective consultative and decision making processes to align with environmental accreditation. The two equations representing the base case of the two respective options are specified below.

Equation (1) represents the net present value derived as a consequence of implementing increased co-management arrangements. The first term is the increase cost of implementation and the second term the derived accumulated cost saving from years 1 to 15, i.e. n.

$$NPV = -40{,}000 + \sum_{i=1}^{n} \frac{104{,}000}{(1+r)^{i}} \qquad (1)$$

Equation (2) represents the net present value derived as a consequence of implementing self management inclusive of an imputed market benefit from third party environmental accreditation derived from Table 6.3. The first term being the higher cost of implementation in year one, the second term representing the first two years of cost saving by implementing greater co-management, the third term being the imputed market benefit reflected by an average price increase for all prawns landed in year 3 until year n and the final term representing the cost savings across all years in year 3 to year n.

$$NPV = -80{,}000 + \sum_{i=1}^{2} \frac{104{,}000}{(1+r)^{i}} + \sum_{i=3}^{n} \frac{\text{Average Yield x } \Delta \text{ price}}{(1+r)^{i}} + \sum_{i=3}^{n} \frac{78{,}000}{(1+r)^{i}} \qquad (2)$$

For purposes of initial evaluation ‗n' is assumed at 15 years, ‗r' the discount rate has been set at 8 percent as an approximation of longer term interest rate , the average yield in the fishery is set at 1000 tonnes and change in price can be set at various assumed improvement in prices (cents per kilo of prawns landed). Appendix 5 provides various estimates of NPV's under various assumptions of costs that also reflect additional implementation and other costs occurring as a result of maintaining environmental certification. (Note: the level of cost savings in options 1 and 2 in table 6.3 is respectively $104,000 and $78,000 annually). Appendix 5 summarizes the key results of this analysis accepting the above assumptions for each of the scenarios and sensitivity testing for different cost estimates linked to environmental certification. These are represented by equations (3) to (5) in Appendix 5.

The key value to examine is the accumulated NPV within the sensitivity analysis undertaken for each option referenced to the base cost to industry under the status quo of the 2008/2009 cost recovery budget (see Appendix 5).

However as mentioned earlier, new costs from third party environmental accreditation costs are expected. These are expected to add $100,000 to annual operating costs for the self management option. This has the effect of changing the third term of equation 2 from plus $78,000 to a negative $22,000 discounted from years 3 to n. Adding further caution by reducing savings by a further $20,000 as a mitigation for data quality risks results in this term further reducing to negative $42,000 (refer equation 4 Appendix 5).

The break even price premium required for this ―most likely" self management scenario compared to the status quo under cost recovery is around 2.6c per kilo, based on all parameters remaining the same. However, to achieve the same NPV benefits as progressing with co-management under the ―most likely" self management scenario raises the break even price premium required to 15.2c per kilo across the total catch.

From the results of sensitivity analysis it is evident that if a price premium for prawns can be obtained from the market place through environmental accreditation, progressing with increasing co-management to a self management model is potentially worthwhile. A doubling of initial implementation costs and adding to ongoing operational costs simply shifts the increase in change in price necessary to reduce the risks of a decision to proceed. A price premium of 10c per kilo across the entire catch as a result of market values attached to an image of self management and third party environmental accreditation warrants little optimism to proceeding beyond extending the present co-management arrangements operating in the Exmouth Gulf Prawn Fishery. A doubling of the premium to 20c per kilo warrants some optimism towards taking a more careful cost analysis and implementing self management under option 2, if the case is made, with the experience of progressing co-management in the fishery as proposed.

A price premium of 50c per kilo supports the earliest progression to both third party environmental accreditation and ‗self management'. The principal assumption being a locally based small management committee, working directly with the industry employees of the company inclusive of environmental outcomes will deliver more cost effective resource management outcomes. This is believed to be more cost effective then currently operating under existing cost recovery arrangements and financial costing model used by the Department of Fisheries, as it minimises the consequences of higher Departmental overheads to industry. Overall, the principal drivers being the arising consequence of industry savings through marginal costing by shifting costs away from the Department, reducing overheads and the pull of pricing benefits from the company adopting environmental accreditation and self management of the fishery.

If in industry's judgement, the existing market price premiums outlined cannot be achieved as suggested, the business case for shifting to a self management model for the fishery is not made. Continuing with the current pathway of increasing co-management arrangements delivery by industry continues to be the best option. This would remain the case unless market access, rather than benefits from pricing, became the driving force for changes in governance connected with the need for third party environmental accreditation.

CHAPTER 7 – Extension of Co-Management to Other Western Australian Fisheries

Before commenting specifically on areas for progressing co-management approaches in other Western Australian fisheries, it is useful to provide some context.

Western Australia has a significant number of commercial fisheries (30) subject to formal management plans under the FRMA. The majority of these fisheries have had at some time management advisory committees formulating and over viewing the introduction of management arrangements and ongoing management performance. This historically has meant external stakeholders to the commercial fisheries especially conservation and recreational fisheries interests have had a significant involvement in consultative management advisory processes. These costs have been borne principally by Government through funding of peak bodies.

Many of the fisheries management plans have been operative for more than ten years with a number of fisheries maintaining relatively stable management regimes.

Cost / price pressures especially since the late 1990's have been a driving force causing industry participants to focus on cost reductions through reducing servicing from the Department of Fisheries for other than essential requirements for research, monitoring, compliance and management. Industry advocates, especially those representing the six fisheries subject to full cost recovery have also actively sought the right to 'outsource' services through a competitive pricing model. Currently the Department of Fisheries is under-taking a review of the 1995 "Cole-House" agreement between the Western Australian Fishing Industry Council and the Minister for Fisheries covering cost recovery arrangements for fisheries in Western Australia. This review is anticipated to be finalised during 2009.

Any progression of 'outsourcing' will also require important policy decisions to be made by the government on issues such as third party access to fisheries data, the ownership and maintenance of essential data sets for managing fisheries, the thorny issue of responsibilities for compliance monitoring verses prosecution and constructs around resource sharing between sectors. There are undoubtedly others.

Coupled with outsourcing of services are issues of performance, audit of performance and those functions which can or cannot be delegated and the obligations of contract management. To some extent the interest in co-management by industry could equally be described as 'in-sourcing' by industry of some or all of the functions and responsibilities currently undertaken by the W.A. Department of Fisheries and canvassed throughout this report.

Another significant major change in the last decade has been the advent of ecological sustainable development assessments for all export fisheries under the EPBC Act. The legislative requirement for renewal of "export permits" for fisheries every three or five years has resulted in third party performance accreditation of ecological sustainable development management principles for export based fisheries. Within Australia, these have now been completed or progressed across two rounds of assessments. In this process, other stakeholders including recreational, commercial and indigenous interests are able to constructively participate in reviewing the performance of fisheries management and input to directions for changes in management through open and transparent consultative arrangements.

It is therefore not surprising with the above changes now well entrenched in recent fisheries management history, that Fisheries Ministers and fisheries management agencies along with industry are seeking to reduce the cost of consultation, reducing committee structures and actively pursuing co-management alternatives.

In Chapter 6, the business case for progressing self management for the Exmouth Gulf Prawn Fishery cannot be substantially justified on costs alone. At face value, a similar conclusion could also be drawn for the Northern Prawn Fishery co-management example presented. There were other considerations (including benefits of joint marketing and fleet operations) that favoured an industry philosophy of seeking greater operational management responsibility by industry towards increased self determination and better commercial outcomes.

In comparing the simplicity of governance and management control exhibited in the Exmouth Gulf Prawn Fishery through a single corporate entity to that required for the governance and control arrangements for a similar cost recovered fishery (e.g. Shark Bay Prawn Trawl Fishery) with multiple owners, cost savings by progressing co-management cannot be assumed. Governance arrangements could be expected to be more expensive. Whilst increasing co-management arrangements for the Shark Bay Prawn Fishery has its attractions, the case for self management in the fishery would likely be strengthened, if there were commercial advantages for all licensees to jointly co-operate from both a fleet and market perspective. A business case and governance model similar to that applying in the NPF warrants attention. For other fisheries under full cost recovery such as the Pearl Industry, the West Coast Rock Lobster Fishery and Shark Bay Scallop Fishery, the prospect of progressing self management appears some time away.

In the case of the pearling industry, policy issues around de-regulation of limits on hatchery quota and resolution of new legislation require determination before a business case can be constructed.

The West Coast Rock Lobster Fishery with existing issues of sustainability in the fishery, various complications from management of input controls and existing divisions within industry would not be assisted by a current debate on either self management or co-management. More important issues are at stake. Post the introduction of quota management in the rock lobster fishery, should such become a reality, re-visiting co-management and ultimately self management has potential to succeed, assuming trust between government and industry leaders and appropriate institutions can be firmly established.

The Shark Bay Scallop Fishery, similar to the Shark Bay Prawn Fishery is not impacted by a recreational or indigenous catch harvest. Once the resource sharing allocation between the two fleets operating in the fishery has been resolved and determined by the Minister, with an agreed pathway for future management, self management through co-management becomes a possibility. Again it is a matter of trust by all parties being established once the fundamental issue of resource sharing has been determined prior to effective collaboration being possible.

The Abalone fisheries in Western Australia are not well placed to be progressed as self managed fisheries until the issue of resource sharing and allocation between the commercial and recreational sector are finally resolved. This does not preclude progression down the co-management continuum including industry service delivery where the business case is made.

For those fisheries not subject to full cost recover, co-management potentially provides a pathway for shifting costs from government to industry. There exists the risk of course that

government may decide to proceed with such a direction noting the high cost of managing multiple small fisheries in Western Australia.

Similar to the Exmouth Gulf Prawn Fishery case study, the prime driver for greater self determination or servicing being done by industry is more likely to be for reasons other than cost effectiveness although this aspect cannot be discounted. This will particularly be the case for fisheries having a small value base should government in future decide to pass on the full costs of management.

The small fisheries warranting further consideration as candidates for further case study development of new co-management arrangements include the South Coast Pilchard Fishery, the Shark Bay Crab Fishery and the Pilbara Trawl Fishery. These fisheries were suggested as candidates for further development of the co-management concept for reasons of geographical spread, improving data collection and analysis and simplicity of having a few players who potentially would benefit through cooperative commercial arrangements. A preliminary business case and support for the concept from the participant industry being a pre condition for further development.

Benefits and Adoption

The completion of this report enables the W.A. Department of Fisheries to consider specific co-management proposals for Legislative amendments and the fishery, together with the department to consider further progression of co-management arrangements. The business case analysis will ultimately assist management and the board of M.G.Kailis Gulf Fisheries Pty Ltd to decide on their future position in relation to various co-management options raised and considered in the case study.

Wider distribution of the report is also likely to facilitate further debate and interest in co-management in Western Australian fisheries and elsewhere in Australia. The report will also further assist more general guidance on legislation for co-management.

Further Development

Future development could include extending the case study approach to other fisheries and formally implementing the further progression of co-management for this case study fishery and Western Australian government consideration of legislative amendment to the *Fish Resources Management Act 1994*. The outcomes of this case study will also be presented to the Western Australian Fishing Industry Council and presented in their magazine.

Planned Outcomes

This research has produced the following outcomes of relevance to the further adoption of co-management arrangements for fisheries management in Western Australia and as relevant Australia.

1. A Ministerial Co-management Policy Guideline for the Exmouth Gulf Prawn Fishery which can be used as a template for other fisheries and as a guide for formal drafting of a specific Guideline should further co-management arrangements proceed in this fishery.
2. Within the guideline, the practical development of reporting performance indicators for the Exmouth Gulf Prawn Fishery to facilitate the further progression of co-management in Western Australia encompassing sustainability, environmental, economic and social objectives.
3. The development of legislative principles for the progression of co-management with in Australia and a set of suggested legislative changes for amendment to the *Fish Resources Management Act 1994.*
4. The presentation of a business case for progressing co-management within the Exmouth Gulf Prawn Fishery including an assessment of options of self management, with and without Marine Steward Council environmental certification.
5. The completion of a pre-assessment of the Exmouth Gulf Prawn Fishery to identify information and process gaps that need to be met, in the event industry seeks to formally progress an application for Marine Stewardship Council environmental certification.

Conclusions

Progression of co-management arrangements throughout Australia have used a range of secondary instruments such as memorandums, policy documents, contractual agreements and instruments of exemptions and delegations has enabled the progression of a range of fishery operational issues by industry under co-management, with limited functional areas for real discretion. The principal policy change decisions requiring legislative amendments remaining very much in the hands of government officials and Ministers.

Twelve legislative principles for facilitating co-management including self management are presented as a guide to legislative amendment to the Western Australian fisheries law and potentially for other jurisdictions.

The business case is made in the Exmouth Gulf Prawn Fishery for greater devolution of fisheries management functions through increased co-management to the industry consistent with administrative efficiency and cost effective management. Further exploration of issues applicable to self management is required before implementation. These include legislative amendments to the *Fish Resources Management Act 1994*, the willingness of government and the minister to devolve executive powers for fishery management plan amendments and assessment of risks for the management agency and industry should a precedent be established.

The business case however for proceeding to self‘ management independent of third party environmental certification could not be made on costs alone relative to extending existing co-management practices within the fishery. Self management as presented in the business case results in new costs for audit, consultation and other costs linked to communication with stakeholders and implementation, as well as new risks without any identified significant commercial benefit.

A decision to progress with self management for the Exmouth Gulf Prawn Fishery from a cost effectiveness viewpoint however could reasonably be made for other market and commercial objectives. The business case for progressing with Marine Stewardship Council certification including self management is made in the event a price premium can be achieved in the order of 15 to 20 cents per kilo. To progress Marine Stewardship Council certification without increasing autonomy for industry to deliver a range of management functions under existing cost recovery funding model could be expected to add further to overheads flowing from the requirements for greater Department of Fisheries servicing. A self management approach represents a better business case from an industry perspective.

In examining the lessons learnt from this case study for other Western Australian fisheries, it is unlikely the case will be made for other fisheries to be self managed on cost effectiveness alone. Individual assessments of the business case for each fishery would be required. With often multiple operators in these fisheries, governance costs and complexity of decisions will add costs relative to this case study.

For those fisheries already subject to full cost recovery, co-management de-facto focuses much more on the industry participants‘ drive for cost reduction through either ~~-in~~-sourcing” (co-management services by industry) or ~~-o~~ut-sourcing” of services provided by the Department of Fisheries seeking lower transaction costs. Co-management for these fisheries offers in part some potential cost benefits.

For those fisheries not subject to full cost recovery, co-management potentially provides a pathway for shifting costs from government to industry.

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APPENDIX 1 – Intellectual Property

There is no intellectual property created as a result of this project

APPENDIX 2 – Staff

Principal Investigator	Dr Peter P Rogers	Murdoch University
Co-Investigator	Mr Stephen Hood	MG Kailis Gulf Fisheries Pty Ltd
Co-Investigator	Mr Shane O'Donoghue	W.A. Department of Fisheries

APPENDIX 3 – Summary of Information / Assessment Gaps for Marine Stewardship Council (MSC) Certification for the Exmouth Gulf Prawn Fishery.

For guidance on the principles for Marine Stewardships Council Fisheries Certification Methodology reference is made to the following documents:-

The MSC Principles and Criteria for Sustainable Fishing
The MSC Fisheries Certification Methodology, Version 6, July 2006
MSC Accreditation Manual, Version 5, August 2005
TAB Directives, including new TAB Directive D-017[1]

Under the methodology applied in this Appendix under the new Assessment Tree, the performance indicators focus upon the outcomes of the fisheries management process and the strategies implemented to achieve those outcomes.

The new Assessment Tree structure has been divided into three levels for the purpose of scoring.

Level 1 is the MSC Principle
Level 2 is the component which is a high level sub-division of the Principle
Level 3 is the performance indicator which is a further sub-division of the principle and the event at which scoring of the fishery occurs

Principle 1 focuses on two key aspects, the current status of the target stock resource, and harvest strategy (management) as a precautionary and effective harvest strategy.

Principle 2 on ecosystem considerations have been categorised into five components. There are retained species, by catch, Endangered, Threatened and Protected (ETP) species, habitats and ecosystem elements. The latter covering trophic structure and function, community composition and biodiversity.

Principle 3 ensures there is an institutional and operational frame work, appropriate to the size and scale of the fishery to deliver the necessary outcomes to achieving Principles 1 and 2. These components focus on governance and policy, and on the management system. The pre assessment for the Exmouth Gulf Prawn Fishery follows ‗heading' structure of the MSC Default Assessment Tree Structure with the same numbering system applied at the level of principles and each of the components.

For each performance indicator, Appendix 3 lists the scoring guideposts to attract the highest level of scoring. The pre–assessment table provided identifies for each component, the information needs, current status of available information and identified gaps to achieve the proposed indicator. Formal scoring is not undertaken but the approach provides a preliminary ‗gap' assessment of the likelihood of successful accreditation.

Part (a)

Each performance indicator for Principle 1 is listed together with scoring post guideline (SG 100); the information needs, the current status of information available and identified needs for MSC certification and proposed end line responsibility. The guideposts are listed as dot points below the PI (performance indicator).

[1] Marine Stewardship Council Fisheries Assessment Methodology and Guidance to Certification Bodies Default Assessment Tree, Performance Indicators and Scoring Guide posts. Version 1, 21 June 2008

Stock status (C1) 1.1.1

(a) PI :

The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing

- There is a high degree of certainty that the stock is above the point where recruitment would be impaired.

- There is a high degree of certainty that the stock has been fluctuating around its target reference point, or has been above its target reference point, over recent years.

(b) Information Needs

- Biological information on target species understood, fishing related variability understood, measured (includes identity of species, life history documented, factors influencing fecundity and recruitment measured, geographical range of stock determined, abundance and density of stock spatiality / temporally known.

- Stock assessment of fishery captured taking into account environmental influences on recruitment, catches, changes of fishing efficiency of fleet over time and variances in broad stock levels.

- Reference points for the fishery defined, supported by decision rules and management measures for the fishery.

- Documented performance at levels above target reference point over recent years.

(c) Current Status of Information Available

- Biological information generally well understood for the 3 key species: King, Tiger and Endeavour prawns.

- Full stock assessment of Exmouth Gulf Prawn Fishery last undertaken in the late1990‘s.

- Independent surveys on both recruitment and residual spawning stocks establish indices for Tiger prawns which are actively utilised to manage the fishery. Relationships are well established and shown to be effective in managing recovery from overfishing (1983–1986) or environmental impacts (eg. Cyclone Vance [2000–2003]).

- Reference points established for breeding stock but could also be established for critical recruitment criteria.

- Work on understanding of stock / recruitment relationships for King prawns (commenced) but not available for Endeavour prawns (yet to commence).

- Practical decision rule on closure of fishery for King prawns based on count size (number per pound) of prawns also be established for determining date for closure of the fishery as new recruits enter the fishery at the end of the year.

(d) Identified Needs for MSC certification

- Update of stock assessments for King, Tiger and Endeavour prawns.

(e) Responsibility Department of Fisheries (Research)

Reference Points 1.1.2

(a) PI :
Limit and target reference points are appropriate for the stock.

- Reference points are appropriate for the stock and can be estimated.

- The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity following consideration of relevant precautionary issues.

- The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome, or a higher level, and takes into account relevant precautionary issues such as the ecological role of the stock with a high degree of certainty.

(b) Information Needs

- Evidence that monitoring measures for reference points for the stock can be estimated.

- Evidence that the lower limit of acceptable reference points maintains adequacy of reproductive capacity.

- Evidence that the target level set provides a precautionary component for issues such as ecological role of the stock.

(c) Current Status of Information

- Evidence on Tiger prawns is sufficiently compelling to meet PI but would be assisted by completion and updating of stock assessment analysis.

- Within the range of historical catch performance, it is likely no stock recruitment relationships will be established for King and Endeavour prawns. Upon demonstration of this outcome, potential to establish lower limit criteria for recruitment levels to support decision making on fishing operations.

- Limited information available on trophic contribution of prawns to broader ecosystem.

(d) Identified Needs for MSC certification

- Update of stock assessments for King, Tiger and Endeavour prawns.

- Enunciation of decision rules for fishery.

- Inclusion of ecological role of prawns as a source of food within a risk assessment evaluation.

(e) Responsibility: Department of Fisheries (Research, Management) and Industry.

Stock rebuilding (C2) 1.1.3

(a) PI :
Where the stock is depleted, there is evidence of stock rebuilding.

- Where stocks are depleted, strategies are demonstrated to be rebuilding stocks continuously and there is strong evidence that rebuilding will be complete within the shortest practicable timeframe.

(b) Information Needs

- Evidence of part rebuilds of population, indices and catches where stock rebuilds necessary through:
  a) stock failures from over fishing
  b) stock failures or depletion from cyclones impacting on habitat.

(c) Current Status of Information Available

- Information on stock rebuilding for Tiger prawns compelling for fishery as a consequence of over fishing in 1982 (1983–1986) and nursery habitat loss from Cyclone Vance 1999 (2000–2003).

- Information on stock rebuild in King prawns in the period 2001 to 2004 after Cyclone Vance demonstrated to be independent of fishing effort levels at the time.

- Macro effort controls historically shown to be effective in maintaining catches within the fishery for King, Tiger and Endeavour prawns.

(d) Identified Needs for MSC

- Information available

(e) Responsibility for Information: Department of Fisheries (Research)

Harvest strategy 1.2.1

(a) PI :
There is robust and precautionary harvest strategy in place.

- The harvest strategy is responsive to the state of the stock and is designed to achieve stock management objectives reflected in the target and limit reference points.

- The performance of the harvest strategy has been fully evaluated and evidence exists to show that it is achieving its objectives including being clearly able to maintain stocks at target levels.

- The harvest strategy is periodically reviewed and improved as necessary.

(b) Information Needs

- Evidence that harvest strategy is responsive to state of stock, achievement of target and limit reference points.

- Performance of harvest strategy fully evaluated demonstrating performance in objectives:
  - maximizing age for recruitment value
  - maintain target stock levels
  - minimize wastage soft / broken prawns

- Reporting and documenting the annual cycle for review and adjustments with continuous improvement with assessment approaches.

(c) Current Status of Information Available

- Evidence available for Tiger prawn stocks in particular as the majority of management decision making is levelled at performance of this stock.

- Annual survey reports noting recruitment surveys and catch prediction for tiger prawns, area opening times, delineation of area remaining closed and in season size survey results demonstrating annual response to stock abundance and size structure of prawns and reasons for opening. This applies to both King and Tiger prawns. This research strategy has adapted the fishery to fish King and Tiger prawns for size and to abundance levels with the aim of maximising value without compromising sustainability. The fishing regime is as flexible and controlled as can be to adjust to market demands for value. Breeding stock surveys during the key spawning period monitor breeding levels. Each year has a differing response to abundance levels noting that there is likely to be environmental disturbances requiring stock rebuilding.

- Evidence on King prawns has not been compiled in a form that assists interpretation of achievement around performance indicators other than maintenance of a target catch range.

- Surveys in conjunction with Research Division for in season and prior to area openings and information collected daily by M.G. Kailis Gulf Fisheries Pty Ltd, enables ongoing interpretation of grade sizes and therefore prawn value with the aim (this does not achieve the desired outcome every year but allows the fishery to be manipulated with this aim) of maximization of value.

- Changing feedback processes (de-briefs at times (e.g. newly opened area) by selected skippers) is facilitating fishing area modification to reduce harvest of soft and small prawns within the context of managed fishing effort and area closures. At times there needs to be some assessment by Research Division for stock levels and size composition.

- Annual variations of license conditions document and statutory Determination of fishing arrangements by the Chief Executive Officer of the Department of Fisheries specifies the formal outcomes of the annual review cycle and adjustment in fishing operations at a fishery level.

(d) Identified Needs for MSC certification

- Catch history of both King and Endeavour prawns needs to be reviewed and reassessed to determine historical trends in fleet effort on stocks over the history of the fishery to demonstrate changes (likely to be reduced) in both effective total effort and spatial area trawled and relevance of catch rates, variations and norms of total catch variation with time. Information is available but needs to be compiled.

(e) Responsibility for Information: Department of Fisheries (Research)

Harvest control rules and tools 1.2.2

(a) PI :
There are well defined and effective harvest control rules in place.

- Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.

- The design of the harvest control rules take into account a wide range of uncertainties.

- Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.

(b) Information Needs

- Decision rules are clearly executed.

- Decision rules cover a range of contingencies.

- Decision rules and consultative processes seen as effective in achieving controls on exploitation.

(c) Current Status of Available Information

- Some decision rules are enunciated in the annual statutory Determination of management rules for the fishery by the Chief Executive Officer of the Fisheries Department.

- Consultancy processes between Department of Fisheries (Research Division) and Industry considered effective in controlling exploitation.

- Information on decision rules for Tiger prawn stocks are more explicit than for King and Endeavour prawn stocks.

(d) Identified Needs for MSC certification

- Enunciation of harvest control rules and limit reference point in supporting policy document to the management plan or within the plan itself.

- Clearer prescription of harvest control rules for all prawn species.

(e) Responsibility for Information: Department of Fisheries (Research) and Industry

Information / monitoring 1.2.3

(a) PI :
Relevant information is collected to support the harvest strategy.

- A comprehensive range of information (on stock structure, stock productivity, fleet composition, stock abundance, fishery removals and other information such as environmental information), including some that may not be directly relevant to the current harvest strategy, is available.

- All information required by the harvest control rule is monitored with high frequency and a high degree of certainty, and there is a good understanding of the inherent uncertainties in the information [data] and the robustness of assessment and management to this uncertainty.

(b) Information Needs

- There exists a comprehensive information data set on the fishery covering the breadth and scope of species caught, stock structure, catch, stock abundance, environmental information etc.

- Information sought on catch, catch rates, fishing effort etc. of relevance to the management of the fishery, is monitored with high frequency with known accuracy and certainties.

(c) Current Status of Available Information

- The information set for the key species, King, Tiger and Endeavour prawns is substantial and includes a range of information that details biology, catch composition and size, fishing effort, catch rate, collation of data both spatially and temporally, fleet composition and fishing power indices over time, environmental information such as temperature (Reynolds‘s sea surface satellite data), rainfall and cyclone conditions (Bureau of Meteorology).

- Integration of data sets demonstrated and information used in a timely way, of sufficiently frequency (daily) to demonstrate relevance and integrated into management discussions. The data sets include fishery dependent and fishery independent data collected and interpreted on a daily basis as needed. This is particularly the case for Tiger prawn stocks but less so for King and Endeavour prawn stocks.

- Comprehensive data on water turbidity or data loggers relevant for management of harvest strategy are not available.

(d) Identified Needs for MSC certification

- Information at face value sufficient to support harvest strategy.

- Understanding of uncertainties in data sets not formally documented but largely understood.

- Interpretation of Endeavour prawn data sets needs development.

(e) Responsibility for Information: Department of Fisheries (Research)

Assessment of stock status 1.2.4

(a) PI :
There is an adequate assessment of the stock status.

- The assessment is appropriate for the stock and for the harvest control rule and takes into account the major features relevant to the biology of the species and the nature of the fishery.

- The assessment takes into account uncertainty and is evaluating stock status relative to reference points in a probabilistic way.

- The assessment has been tested and shown to be robust. Alternative hypotheses and assessment approaches have been rigorously explored.

- The assessment has been internally and externally peer reviewed.

(b) Information Needs

- Evidence of models and assumptions.

- Evidence models take into account uncertainties and some estimate of reference point in terms of stochastic probability estimate of accuracy.

- Evidence that various stock assessment approaches been undertaken, and subject to peer review (internal and external).

(c) Current Status of Available Information

- Relationships between spawning stock index, recruitment and environment developed for the Tiger prawn stock, updated annually for management decision making.

- Last formal stock assessment for the prawn stocks in Exmouth Gulf completed in 1998.

- Commercial focus on size / value of prawns harvested and reducing fleet capacity has reduced the size of the fishery spatially and total effective effort within the fishery.

- Assessment of stock / recruitment indices for King prawn stock progressively being assessed but little work progressing on Endeavour prawn stocks.

(d) Identified Needs for MSC certification

- Formal stock assessment of prawn fishery incorporating data from 1998 to the present needs to be undertaken.

- The assessment needs to take into account uncertainties and evaluate as appropriate relevance of and use of alternative modeling techniques. The outcomes to be subject to external peer review.

- Re-assessment should occur at least every five years.

(e) Responsibility for Information: Department of Fisheries (Research) and Industry.

Part (b)

Each performance indicator for Principle 2 is listed together with scoring post guidelines (SG 100), the information needs and current status of information available.

The identified need for MSC certification are aggregated at the end of each segment component and responsibility, that is for retained species, by-catch, endangered threatened and protected species, habitat and ecosystem status.

Retained Species 2.1

(a) PI : 2.1.1 (Outcome status)

The fishery does not pose a risk of serious or irreversible harm to the retained species and does not hinder recover of a depleted retained species.

- There is a high degree of certainty that retained species are within biologically based limits.

- Target reference points are defined and retained species are at or fluctuating around their target reference points.

PI : 2.1.2 (Management strategy)

There is a strategy in place for managing retained species that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to retained species.

- There is a strategy in place for managing retained species.

- The strategy is mainly based on information directly about the fishery and / or species involved, and testing supports high confidence that the strategy will work.

- There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring.

- There is some evidence that the strategy is achieving its overall objective.

PI : 2.1.3 (Information/monitoring)

Information on the nature and extent of retained species is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage retained species.

- Accurate and verifiable information is available on the catch of all retained species and the consequences for the status of affected populations.
- Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.
- Information is adequate to support a comprehensive strategy to manage retained species and evaluate with a high degree of certainty whether the strategy is achieving its objective.
- Monitoring of retained species is conducted in sufficient detail to assess ongoing mortalities to all retained species.

(b) Information Needs

- Biological information on retained species is known in sufficient detail.
- Catch of retained species recorded as part of fishery data and verifiable.
- A risk assessment on the fishery impacts for each retained species has been undertaken with a resultant determination of a target reference point and methods for measurement.
- A management strategy is designed to manage the retention (excessive take) risk where catches of retained species are outside normal acceptable catch range for the fishery historically.
- Impact of adjacent fisheries (if any) or significant environmental events impacting or retained species are monitored and assessed.

(c) Current Status of Information Available

- The retained species are blue swimmer crabs, squid, octopus, cuttlefish, coral prawns (11 small prawn species but possibly 3 retained), slipper lobsters (bugs) (2 species) and banana and black tiger prawns.
- Biological information for these species generally known.
- Fishing mortality measured but little analysis undertaken.
- There exists the potential to define reference points (historical catch limits) and define a workable strategy for managing risks for these species and to build these into the management program including a consultative process.
- Verifiable separate information on retained catches possible from financial records of the company as well as from independent survey work conducted by the Department of Fisheries on commercial trawlers.

(d) Identified Needs for MSC certification

- Sufficient data appears to be available to undertake a risk assessment.
- The process of risk assessment should be able to identify suitable mitigation strategies to cope with consultative requirements, evaluation needs and reference points for ongoing management into the future.

(e) Responsibility for Information: Department of Fisheries (Research and Management)

By-catch 2.2

(a) PI : 2.2.1 (Outcome status)

The fishery does not pose a risk of serious or irreversible harm to the by-catch species or species groups and does not hinder recovery of depleted by-catch species or species groups.

- There is a high degree of certainty that the by-catch species are within biologically based limits.

PI : 2.2.2 (Management Strategy)

There is a strategy in place for managing most by-catch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to by-catch populations.

- There is a strategy in place for managing and minimizing by-catch.
- The strategy is mainly based on information directly about the fishery and / or species involved, and testing supports high confidence that the strategy will work.
- There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring.
- There is some evidence that the strategy is achieving its objective.

PI : 2.2.3 (Information/monitoring)

Information on the nature and amount of by-catch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage by-catch.

- Accurate and verifiable information is available on the amount of all by-catch and the consequences for the status of affected populations.
- Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.

- Information is adequate to support a comprehensive strategy to manage by-catch, and evaluate with a high degree of certainty whether a strategy is achieving its objective.

- Monitoring of by-catch data is conducted in sufficient detail to assess ongoing mortalities to all by-catch species.

(b) Information Needs

- Biological information on retained species or species groups is known in sufficient detail.

- Catch of by-catch species recorded as part of fishery data and verifiable.

- A risk assessment on the fishery impacts for each by-catch species / or species group been undertaken with a resultant determination of a target reference point and methods for measurement.

- A management strategy is designed to manage the return of by-catch to the sea in the best possible condition (live) to limit fishing induced mortality.

- A management strategy is designed to optimize by-catch survival where catches of by-catch are outside normal acceptable range for the fishery historically.

(c) Current Status of Information Available

- An ESD risk assessment was undertaken on the Exmouth Gulf trawl fisheries in October 2001.

- A research project FRDC 2002/038 –Development of biodiversity and habitat monitoring systems for key trawl fisheries in Western Australia" has been completed. This research project concluded

  (i) No statistical difference was found for pooled data (trawled sites and sites closed to trawling) in Exmouth Gulf with respect to fish and invertebrate abundance, species richness, evenness or diversity.

  (ii) No major detrimental ecological impacts were identified during the project although there was some evidence that high trawl effort sites had lowered faunal abundance in Exmouth Gulf.

  (iii) The primary strategy to monitor trawl impacts would be to assess the extent of trawling (area covered and aggregate effort) annually.

- The fishery has adopted a range of methods (by-catch reduction devices (BRD's) and secondary fish escape devices (FED's) and use of hoppers (seawater catch holding tanks) and happens to optimize prawn catch quality whilst at the same time, reducing by-catch mortality. Some data exists, but there is a need to have ongoing monitoring on effectiveness of FED's to reduce by-catch.

- Little is known on the survival of by-catch released live from on deck handling although some information may be relevant from similar research in the Northern Prawn Fishery and the Queensland Trawl Fishery.

- There has been no estimation of total by-catch discards for the fishery over time.

- There is no evidence of ongoing consideration of by-catch risks or strategy consideration by management processes or adoption of a formulated strategy to manage by-catch risk outside the use of BRD's, FED's and on board hoppers.

- Gear discards (net losses) in the fishery are not recorded.

- All catch is transferred from the cod end into hoppers with flow through seawater which facilitates survival of by-catch whilst it is sorted and returned to the sea. The extent of actual survival is not known but some work has been conducted on survival of by-catch in hoppers by Carrick in South Australia and Gribble in Queensland.

(d) Identified Needs for MSC certification

- Sufficient data appears to be available to undertake an updated risk assessment (last undertaken in 2001).

- The process should be able to identify suitable mitigation strategies to cope with consultative requirements, evaluation needs and reference points for ongoing management.

- The fishery independent surveys could be used to gather data on by-catch trends recognizing that at this point in time of the fishery's history, it is not possible to benchmark against prior years or prior to the commencement of the fishery.

(e) Responsibility for Information: Department of Fisheries (Research and Management) and Industry

Endangered, Threatened and Protected Species 2.3

(a) PI : 2.3.1 (Outcome status)

The fishery meets national and international requirement for protection of ETP species.

The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.

- There is a high degree of certainty that the efforts of the fishery are within limits of national and international requirements for protection of ETP species.

- There is high degree of confidence that there are no significant detrimental effects (direct and indirect) of the fishery on ETP species.

PI : 2.3.2 (Management strategy)

The fishery has in place precautionary management strategies designed to:
- meet national and international requirements;
- ensure the fishery does not pose a risk of serious or irreversible harm to ETP species;
- ensure the fishery does not hinder recovery of ETP species; and

- minimize mortality of ETP species.

- There is a comprehensive strategy in place for managing the fishery‘s impacts on ETP species; including measures to minimize mortality, that is designed to achieve above national and international requirements for the protection of ETP species.

- The strategy if mainly based on information directly about the fishery and / or species involved, and a quantitative analysis supports high confidence that the strategy will work.

- There is clear evidence that the strategy being implemented successfully, and intended changes are occurring. There is evidence that the strategy is achieving its objective.

PI : 2.3.3 (Information/monitoring)

Relevant information is collected to support the management of fishery impacts on EPT species including;
- information for the development of a management strategy;
- information to assess the effectiveness of the management strategy; and
- information to determine the outcome status of ETP species.

- Information is sufficient to quantitatively estimate outcome status with a high degree of certainty.

- Information is adequate to support a comprehensive strategy to manage impacts, minimize mortality and injury of ETP species, and evaluate with a high degree of certainty whether a strategy is achieving its objectives.

- Accurate and verifiable information is available on the magnitude of all impacts, mortalities and injuries and the consequences for the status of ETP species.

(b) Information Needs

- Biological information on ETP species is known in sufficient detail.

- Catch of ETP species recorded as part of fishery data and verifiable. Needs to distinguish between released alive, injured or dead.

- A risk assessment on the fishery impacts for each ETP species / or species group been undertaken with a resultant view being formed on the impact of the fishery on the species, the overall effectiveness of investigation measures and consequences for the status of ETP species.

- A management strategy described to manage the return of ETP species to the sea in the best condition (live) to limit fishing induced mortality.

(c) Current Status of Information Available

- Protected species present in the area of the fishery include;
  - sea-snakes (5 species) syngnathids (seahorses, pipefish)
  - turtles (leatherback, green, loggerhead, flatback and hawksbill)
  - dugongs and cetaceans

- Risk assessment completed in 2001 and with the exception of syngnathids and loggerhead turtles, all protected species considered to be at negligible risk from the fishery.

- An observer program during BRD implementation project in 2000/2001 indicated that 100% of turtles were excluded by grids. Only three turtles have been reported as being caught in nets with grids since full implementation of grids in 2003.

- Logbook information collected on incidental landings of turtles and sea-snakes. Information on syngnathids considered less reliable due to difficulty in separating from weed by-catch.

- No ongoing independent verifiable data available on ETP species capture.

(d) Identified Needs for MSC certification

- Sufficient data appears to be available to undertake an updated risk assessment (last undertaken in 2001).

- The process should be able to identify ways of improving quality of verifiable data on ETP species mortality, to improve confidence in outcomes identified.

- Protocols for the return of ETP species to the water need to be documented with ~~-e~~vidence of compliance" or incentives to comply.

(e) Responsibility for Information: Department of Fisheries (Research) and Industry.

Habitat 2.4

(a) PI : 2.4.1 (Outcome status)

The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional basis and function.

- There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious irreversible harm.

PI : 2.4.2 (Management strategy)

There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.

- There is a strategy in place for managing the impact of the fishery or habitat types.

- The strategy is mainly based on information directly about the fishery and / or habitats involved, and testing supports high confidence that the strategy will work.

- There is clear evidence that the strategy is being implemented successfully, and intended changes are occurring. There is some evidence that the strategy is achieving its objective.

PI : 2.4.3 (Information/strategy)

Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types.

- The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat type.
- Change in habitat distributions over time are measured.
- The physical impacts of the gear on the habitat types have been quantified fully.

(b) Information Needs

- A relatively detailed habitat distribution and map for Exmouth Gulf region (area of fishery).
- Comparative analysis of historical view (if not available, predicted past habitat distribution).
- Overlay of areas closed to trawling, trawled annually and fishing intensity spatially represented.
- Data demonstrating trend in area swept over time showing divergence trends in aggregate effort and spatial components.
- Collation and reporting of trawling impacts on faunal communities and benthos in accordance with bottom type and habitat.
- Evidence of strategy limiting fishery impacts on habitat.

(c) Current status of Information available

- Detailed habitat survey of Exmouth Gulf not available although relevant information available from a range of sources.
- FRDC project 2002/038 provides evidence that habitat type, species distribution and diversity correlated with depth and substrate type sufficient to provide an acceptable spatial representation of habitat.
- Fishery information available sufficient to document changes in the swept area of the fishery over time and spatially defining areas of differing fishing intensity. This can be presented spatially and reported as % of area fished in annual and the State of Fisheries reports.
- Information sufficient to exclude areas currently open to trawling from the fishery to mitigate risk of future changes to ~~"v~~ulnerable" habitats.
- Risk assessment of trawling to habitat types including turbidity documented as part of ESD risk assessment in 2001 for the Exmouth Gulf Prawn Fishery.
- Mitigation strategies to further limit expansion in areas trawled within the management process to be effectively developed and verifiable using VMS and Smart Prawn Systems already in place.

(d) Identified Need for MSC certification

- A substantial level of information is already available but needs collation to place into a form that is readily accessible for management needs.

- Identification of risks associated with management of habitat need to be better linked formally to the management processes and evaluation requirements for the fishery.

(e) Responsibility for Information: Department of Fisheries (Research)

Ecosystem 2.5

(a) PI : 2.5.1 (Outcome status)

The fishery does not cause serious or irreversible harm to the key elements of ecosystem structure and function.

- There is evidence that the fishery is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm.

PI : 2.5.2 (Management strategy)

There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.

- There is a strategy that consists of a plan, containing measures to address all main impacts of the fishery on the ecosystem, and at least some of these measures are in place.
  The plan and measures are well understood functional relationships between the fishery and the components and elements of the ecosystem.

- The plan provides for development of a full strategy that restrains impacts on the ecosystem to ensure the fishery does not cause serious or irreversible harm.

- The measures are considered likely to work based on prior experience, plausible argument or information directly from the fishery / ecosystems involved.

- There is evidence that the measures are being implemented successfully.

PI : 2.5.3 (Information/monitoring)

There is adequate knowledge of the impacts of the fishery on the ecosystem.

- Information is adequate to broadly understand the key elements of the ecosystem.

- Main interactions between the fishery and the ecosystems elements can be inferred from the existing information and have been investigated.

- The impacts of the fishery on target, by-catch retained and ETP species and habitats are identified and the main functions of the components in the ecosystem are understood.

- Sufficient information is available on the impacts of the fishery and the components and elements to allow the main consequences for the ecosystem to be inferred.

- Information is sufficient to support the development of strategies to manage ecosystem impacts.

(b) Information Needs

- A qualitative model for the Exmouth Gulf ecosystem be developed that describes:
  - the structure and functional relationships of the ecosystem
  - defines the pathway of impacts of the fishery on target, by-catch, retained and ETP species and habitats within the ecosystem.

- A risk assessment evaluation of the pathways in order to determine the consequences of the fishery for the maintenance of ecosystem structure and function.

- Knowledge of trophic pathways for key species.

- Once developing an understanding of ecosystem structure and function, assess risk arising from
  - cyclone events
  - climate change
  - coastal development
  - marine pest introductions
  - marine industry activity (e.g. aquaculture and introduced disease risks)

  on fishery and ecosystem.

(c) Current Status of Information available

- Little evidence of ecosystem failure within Exmouth Gulf but needs to be documented and evaluated.

- Risk assessment evaluation in 2001 did not assess impact of fishery on broader ecosystem function and structure.

- Sufficient knowledge appears to be available to commence the development of a qualitative model.

- The risk assessments for many of the components of such a qualitative model have been documented.

(d) Identified Need for MSC certification

- Pathway for progressing assessment under this group of performance indicators needs to be developed together with an implementation plan.

- Historical overview of Exmouth Gulf fisheries to be undertaken to assess whether there exists any evidence of ecosystem failure or trophic impacts from fishing.

(e) Responsibility for Information: Department of Fisheries (Research) and Company

Part (c)

Each performance indicator for Principle 3 is listed together with scoring post guideline (SG 100); the information needs, the current status of information available and identified needs for MSC certification and responsibility.

Legal and/or customary framework 3.1.1

(a) PI :

The management system exists within an appropriate and effective legal and/or customary framework which ensures that it:

- Is capable of delivery sustainable fisheries in accordance with MSC Principles 1 and 2;
- Observe the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood; and
- Incorporates and appropriate dispute resolution framework.

SG : 100

- The management system is generally consistent with local, national or international laws or standards that are aimed at achieving sustainable fisheries in accordance with MSC Principles 1 and 2.

- The management system incorporates or is subject by law to a transparent mechanism for the resolution of legal disputes that is appropriate to the context of the fishery and has been tested and proven to be effective.

- The management system or fishery acts proactively to avoid legal disputes or rapidly implements binding judicial decisions arising from legal challenges.

- The management system has a mechanism to formally commit to the legal rights created explicitly or established by custom on people dependent on fishing for food and livelihood in a manner consistent with the objectives or MSC Principles 1 and 2.

(b) Information Needs

- Evidence of legal framework within state legislative / Commonwealth framework linked to objectives of sustainability etc.

- Evidence that customary framework not relevant for this fishery.

- Evidence of legal framework for recording legal disputes, enforcement of judicial decisions and law.

(c) Current Status of Information Available

- Australia‘s and Western Australia‘s statutory and common law framework and independent judicial law and review procedures are significant and substantial.

- There is separate Commonwealth law that has effectively extinguished any customary (aboriginal claim) to access into the Exmouth Gulf Prawn Fishery.

- The provisions of the *Fish Resources Management Act 1994* and regulations provides substantial provisions for the governance of the fishery, objective provisions for legislative and creation of a rights based fishery.

- There is a track record of a management system that proactively acts to amend management arrangements, enforce fisheries laws and effect changes impacted as a consequence of judicial review or management changes.

(d) Identified need for MSC certification

- None identified.

(e) Responsibility for Information: Department of Fisheries (Research, Compliance and Management).

Consultation roles and responsibilities 3.1.2

(a) PI :

The management system has effective consultation processes that are open to interested and affected parties.

The roles and responsibilities of organizations and individuals who are involved in the management process are clear and understood by all relevant parties.

SG : 100

- Organizations and individuals involved in the management process have been identified. Functions roles and responsibilities are explicitly defined and well understood for all areas of responsibility and interaction.

- The management system includes consultation processes that regularly seek and accept relevant information, including local knowledge. The management system demonstrates consideration of the information and explains how it is used or not used.

- The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.

(b) Information Needs

- Evidence outlining rules and responsibilities of organization and individuals involved documented and defined.

- Evidence of open consultative processes, transparency in decision making including local knowledge.

- Evidence of effective engagement of interested parties and consideration of issues bought forward.

(c) Current Status of Information Available

- Formal management advisory committee meeting has not been held for the last 2 years.

- Operational management arrangements by the Department and Company has facilitated on going management of the fishery with formal documentation found in the advice to the Chief Executive Officer of the Department of Fisheries. There has been little engagement of external party interests in this engagement.

(d) Identified need for MSC certification

- Reconstruction of formal consultative process that facilitates greater transparency in decision making.
- Realignment of agenda for meetings to deliver against PI review and decision making within the consultative processes for management of the fishery.
- Consultative approach through the previous formal MAC arrangement or through co-management needs to be redeveloped that effectively takes into account local knowledge.

(e) Responsibility for Information: Department of Fisheries and Industry

Long term objectives 3.1.3

(a) PI :

The management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.

SG : 100

- Clear long-term objectives that guide decision-making, consistent with MSC Principles and Criteria and the precautionary approach, are explicit within and required by management policy.

(b) Information Needs

- Evidence of clear long term objectives consistent with MSC Principles and Criteria are explicitly stated (it does not say how it should be stated).

- Evidence of precautionary approach in decision making reflected in management decision making processes and in internal advice by the Department of Fisheries.

(c) Current Status of Information Available

- Management Advisory Committee guidelines outline roles and responsibilities of members including operational requirements.

- Management plan and Fisheries Resources Management Act establishes broad objectives however there is no explicit objectives in the management plan or supporting formal policy documentation providing direction for the management of the fishery outside of the management plan.

- Minutes of meetings setting down decision making process are a requirement of management advisory committee processes

- Formal decision making minutes to the Chief Executive Officer of the Department of Fisheries establish and document the basis of all decisions for managing the fishery.

(d) Identified Need for MSC certification

- Redefine management processes and engagement of key stakeholders within a consultative framework that provides opportunity for stakeholder engagement (input) and transparency in decision making for the fishery. Desirably this needs to be undertaken at the ~~l~~ocal" level.

- Within the context of co-management, the development of a supporting policy directions document including objectives to support the management plan for the fishery issued under the FRMA that could be set by the Chief Executive Officer of the Department of Fisheries or the Minister for guidance in management of the fishery. This could be integrated with identification of key performance indicators and reporting requirements which set out specific objectives (this could require legislative change).

- The re-engineering of agendas and focus of Consultative Committee to actively address as part of their business, performance, evaluation and reporting against MSC performance indicators.

(e) Responsibility: Department of Fisheries, Company and management body having defined consultative responsibilities for the fishery.

Incentives for sustainable fishing 3.1.4

(a) PI :

The management system proves economic and social incentives for sustainable fishing and does not operate with subsidies that contribute to unsustainable fishing.

SG : 100

- The management system provides for incentives that are consistent with achieving the outcomes expressed by MSC Principles 1 and 2, and explicitly considers incentives in a regular review of management policy or procedures to ensure that they do not contribute to unsustainable fishing practices.

(b) Information Needs

- Evidence of incentives to achieving outcomes of MSC Principle 1 and 2 is focused on being able to demonstrate processes, policies, principles that encourage fishers in engendering a sense of stewardship, reducing risk for the fishery through active engagement of fishers and demonstration of behavior by stakeholders towards meeting public ~~g~~ood interests" of the fishery and longer term objective outcomes.

- Proof in evidence that ~~s~~ubsidies" do not contribute to unsustainable fishing.

(c) Current Status of Information Available

- Co-management practices within the fishery, including active participation in fishery independent surveys by company and fishers, engagement of Industry in local area management, improving value of catch and assisting with interpretation of risks for the fishery and matching of factory processing capacity to harvest take.

- Demonstration of stewardship interests by industry via public forums such as Exmouth on Show'.

- Independent advice on significance of subsidies in the Australian Fishing industry needs to be sourced but known to not be significant.

(d) Identified Need for MSC certification

- Information is available but as relevant needs to be sourced.

(e) Responsibility for Information: Department of Fisheries (Management) and Industry

Fishery specific objectives 3.2.1

(a) PI :

The fishery has clear, specific objectives designed to achieve the outcomes expressed by MSC's Principles 1 and 2.

SG : 100

- Well defined and measurable short and long term objectives which are demonstrably consistent with achieving the outcomes expressed by MSC's Principles 1 and 2 are explicit within the fishery's management system.

(b) Information Needs

- Evidence of fishery specific explicit long and short term objectives that are consistent with MSC Principles 1 and 2.

(c) Current Status of Information Available

- Management plan and Fisheries Resources Management Act establishes broad objectives however there is no explicit objectives in the Management Plan or supporting formal policy documentation providing directions for either short or long term for the fishery.

(d) Identified Need for MSC certification

- Within the context of co-management, the development of a supporting policy directions document to support the management plan for the fishery, issued under the FRMA that could be issued by the Chief Executive Officer of the Department of Fisheries or Minister for guidance in the Management of the Fishery which sets out specific objectives, performance and reporting PI's.

(e) Responsibility for Information: Department of Fisheries (Research and Management)

Decision-making processes 3.2.2

(a) PI :

The fishery-specific management system includes effective decision-making processes that results in measure and strategies to achieve the objectives.

SG : 100

- There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.
- Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
- Decision-making processes use the precautionary approach and are based on best available information.
- Formal reporting to all interested stakeholders describes how the management system responded to finding and relevant recommendations emerging from research, monitoring, evaluation and review activity.

(b) Information Needs

- Evidence of effective decision making that demonstrates transparency, completeness, precautionary in approach and provides for formal reporting of research, monitoring, evaluation and review.

(c) Current Status of Information Available

- Formal minutes of meeting and reports to the Chief Executive Officer of Department of Fisheries provide a basis of evidence for decision making.
- Research and management outcomes published annually in State of Fisheries, other research reports published on the Department of Fisheries Website and in scientific journals.

(d) Identified Need for MSC certification

- Reporting needs to be customized to meet needs of the MSC under this KPI but achievable with website portal.

(e) Responsibility for Information: Department of Fisheries (Research and Management)

Compliance and enforcement 3.2.3

(a) PI :

Monitoring, control and surveillance mechanism ensure the fishery‘s management measures are enforced and complied with.

SG : 100

- A comprehensive monitoring, control and surveillance system has been implemented in the fishery under assessment and has demonstrated a consistent ability to enforce relevant management measures, strategies and/or rules.

- Sanctions to deal with non-compliance exist, are consistently applied and demonstrably provide effective deterrence.

- There is a high degree of confidence that fishers comply with the management system under assessment, including, providing information of importance to the effective management of the fishery.

- There is no evidence of systematic non-compliance.

(b) Information Needs

- Evidence of laws and as appropriate sanctions for non compliance.

- Evidence of regular and consistent prosecution.

- Evidence of risk assessment evaluation of compliance in the fishery and external review of compliance performance from time to time, assuming risks of systematic non compliance failure.

- Evidence of positive involvement by fishers actively supporting compliance effectiveness through codes of practice, reporting breaches and participating in company / fisher led self regulation practices.

(c) Current Status of Information Available

- Management plan and fisheries legislation for the fishery have clear explicit breaches and sanctions.

- Ongoing monitoring of vessel operations by Smart Prawn (Management) and Vessel Monitoring System (Department of Fisheries) provides effective area management controls within the fishery.

- Risk assessment and section compliance plans operative for the fishery by the Department of Fisheries.

- Company based procedures and sanctions in place within employment contracts for breaches of industry and law provision rules for the fishery. Also evidence of self regulation.

(d) Identified Need for MSC certification

- Reporting needs to be customized for MSC under this performance indicator but information available.

(e) Responsibility for Information: Department of Fisheries (Compliance) and Industry.

Research Plan 3.2.4

(a) PI :

The fishery has a research plan that addresses the information needs of management.

SG : 100

- A comprehensive research plan provides the management system with a coherent and strategic approach to research across P1, P2 and P3, and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.

- Research plan and results are disseminated to all interested parties in a timely fashion and are widely and publicly available.

(b) Information Needs

- Evidence of a research plan across principles for MSC that is sufficiently reliable, current and sufficient to meet objectives.

- Plan is publicly available.

(c) Current Status of Information Available

- The plan is available but needs to be reformatted to meet Performance Indicator.

- The plan is currently not publicly available with limited stakeholder distribution.

(d) Identified Needs for MSC certification

- To update plan and systemize the communication of research plan and its ongoing updating within business arrangements and governance.

(e) Responsibility for Information: Department of Fisheries (Research)

Monitoring and management performance evaluation 3.2.5

(a) PI :

There is a system for monitoring and evaluating the performance of the fishery-specific management against its objectives.

There is effective and timely review of the fishery-specific management system.

SG : 100

- The fishery has in place mechanism to evaluate all parts of the management system and is subject to regular internal and external review.

(b) Information Needs

- Evidence of a formal management review cycle in place both within the annual consultative / business process cycle and periodically (say every 5 years) involving external review reporting.

(c) Current Status of Information Available

- Annual review cycle evident for the fishery but does not cover full array of PI for Principle 2 in particular.

- Documentation possibly insufficient but includes minutes of meetings, reporting to the Chief Executive Officer of the Department of Fisheries, periodical reporting under EPBC set requirements, State of the Fisheries and Department Annual Report.

(d) Identified Needs for MSC certification

- Processes around reporting, documentation and review arrangement need re-engineering to meet needs of PI reporting under MSC. Much already in place but needs systemising.
- An independent review of the fishery needs to be organized on a regular basis (every 3–5 years) with an internal annual review.

(e) Responsibility for Information: Department of Fisheries (Management)

APPENDIX 4 – Ministerial Co-Management Policy Guideline for the Ecologically Sustainable Management of the Exmouth Gulf Prawn Managed Fishery

1. Introduction

The Western Australian Government has embraced the concept of Ecologically Sustainable Development and its guiding principles and is actively working to ensure that the philosophy of sustainability underpins Government policies, activities and decision-making. The Government has also embraced the concept of Co-management as a tool towards placing the day to day decision making for selected fisheries in the hands of individuals or organisations as a means of allowing industry to assume greater stewardship for the management of fisheries. This specific guideline developed for the Exmouth Gulf Prawn Fishery is required to be considered and taken into account by the Exmouth Gulf Prawn Fishery Management Committee (the co-management body) in future management decisions for this Fishery as the co-management body assigned responsibility for its management. [1]

The fish resources of Western Australia are a community asset, which the Government of Western Australia manages on behalf of all Western Australians and the Australian nation. Sustainable management of fish resources is essential to ensure that they are conserved for the use and enjoyment of current and future generations. The users of the State's fish resources, whether for commercial, recreational, customary or conservation purposes, need to participate responsibly in their sustainable management.

There is a need for Government to provide all stakeholders with a clear policy statement on the objectives and performance indicators for the management of sustainable fisheries in Western Australia. This Policy Guideline also draws attention to the following matters:

a) the broad Ecologically Sustainable Development framework for fisheries management in Western Australia;
b) specific Ecologically Sustainable Development management objectives for fisheries in Western Australia;
c) a general overview of Exmouth Gulf Prawn Managed Fishery and
d) specific Ecologically Sustainable Development operating objectives and performance indicators and measures for the Exmouth Gulf Prawn Managed Fishery, that is, the commercial trawl fishery for prawns (and limited selected or listed by-product) in Exmouth Gulf (see the description of the fishery at Section 4.3.1).

As the Minister responsible for fisheries management in Western Australia, I have identified matters in this Policy Guideline that I consider to be important and that should be taken into account when the co-management body performs their

[1] Further details on the Management Committee are provided in 4.3 of the main body of this report. The Co-management policy guideline has been drafted as if the management of the fishery has been assigned to a ~~"m~~management body" for decision making. This guideline template can be adapted to meet both co-management and self management arrangements for the majority of Western Australia managed fisheries.

functions with regard to the sustainable management of the Exmouth Gulf Prawn Managed Fishery.

11 Structure of this Ministerial Policy Guideline

The following flow diagram outlines the three-tiered structure of this Ministerial Policy Guideline.

Ministerial Policy Guideline Format and Ecologically Sustainable Development Fishery Policy Framework

- ❑ Introduction
- ❑ The Role of Ministerial Policy Guidelines
- ❑ Details of the Co-management Body's Function
- ❑ Matters considered by the Minister to be of Importance
- ❑ Ecologically Sustainable Development Framework for integrated Fisheries Management Principles

ESD Fishery Objectives

- ❑ Ecological
- ❑ Social
- ❑ Economic
- ❑ Governance

Issues specific to the Exmouth Gulf Prawn Managed Fishery

- ❑ Description of the Exmouth Gulf Prawn Managed Fishery
- ❑ Operating Objectives and Performance Indicators for the Exmouth Gulf Prawn Managed Fishery:
  - Ecological
  - Social
  - Economic
  - Governance

For definitions of terms refer to Table 1 in this Guideline.

2. The role of Co-Management Ministerial Policy Guidelines

This Policy Guideline is issued specifically by the Minister for Fisheries for the assistance of the management body and the information of the fishing industry and the community.

It sets out certain matters that I (as Minister) consider are important to the performance by the management body for the functions delegated in the management of the Exmouth Gulf Prawn Managed Fishery on an ecologically sustainable basis, consistent with Government policy on sustainability and in accordance with set objectives and performance indicators specified for the fishery.

In performing any function under the delegation assigned, the co-management body is to take into account any Policy Guidelines I have made that relate to the performance of that function. However, nothing in the Policy Guidelines derogates from the management body's duty to exercise discretion in a particular case taking into account the objects of the *Fish Resources Management Act 1994* and the specific management needs of the fishery.

2.1 Review Period

It is expected that this Policy Guideline will be reviewed and/or amended at least every 10 years.

3. Details of the Co-Management body's functions under the *Fish Resources Management Act 1994*, to which this guideline relates

The management body should take into account the matters that I consider to be of importance, as set out in this Ministerial Policy Guideline, in performing the functions delegated for administering the management of the Exmouth Gulf Prawn Managed Fishery on an ecologically sustainable basis.

The functions to be undertaken by the management body are referred in the instrument of delegation issued by the Minister for Fisheries under s.12 of the Act.

4. Matters considered by the Minister to be of importance

As Minister responsible for the administration of the Act, I consider that the management body should apply the following important policies in administering the management of the Exmouth Gulf Prawn Managed Fishery. This fishery should be managed:

- within the Ecologically Sustainable Development framework for fisheries management in Western Australia;
- in accordance with the objectives of the *Fish Resources Management Act 1994;* and
- under its own specifically identified operating objectives and performance indicators.
- To facilitate continuance of a current permit exemption under the EPBC Act for the export of prawns and compliance with recommendations arising from review procedures under that Act. [2]

[2] Department of Environment and Water Resources, Heritage and the Arts. Exmouth Gulf Prawn Managed Fishery Annual ESD Audit. August 2008.

4.1 The Ecologically Sustainable Development Framework for Fisheries in Western Australia

The objectives and performance indicators for fisheries management in Western Australia are part of a much broader State, National and International commitment to the concept of Ecologically Sustainable Development:[3] Ecologically Sustainable Development seeks to integrate short and long-term social, economic and environmental effects in all decision making. The objectives of the Act underpin the Ecologically Sustainable Development principles for fisheries management in Western Australia.

An important aspect of Ecologically Sustainable Development for fisheries management is the process of Integrated Fisheries Management, the core of which involves setting total sustainable harvest levels of each resource that allows for an ecologically sustainable level of fishing; allocation of explicit catch shares for use by commercial, recreational and indigenous fishers; continuing monitoring of each sector's harvested catch; managing each sector within its allocated catch share; and developing mechanisms to enable the reallocation of catch shares between sectors.

This Policy Guideline also provides an overview of:

- the objectives of the Act;
- the National Ecologically Sustainable Development objectives;
- the core objectives of Integrated Fisheries Management;
- the bioregions used for fisheries management;
- the outcomes to be delivered by the management body
- the functions to be undertaken by the management body
- how issues and risks are assessed in the development of objectives and performance indicators for a fishery; and the other policy documents that form the basis of the Ecologically Sustainable Development framework for fisheries management in Western Australia

4.1.1 The objectives of the Fish Resources Management Act

The *Fish Resources Management Act 1994* provides a framework under which all fisheries and related activities (commercial, recreational, processing, eco-tourism, etc) and aquaculture in Western Australia operate. The decisions and actions of the Minister for Fisheries and the co-management body must comply with the *Fish Resources Management Act 1994*.

Section 3 sets out the objects of the Fish Resources Management Act 1994 as follows:

"The objects of this Act are to conserve, develop and share the fish resources of the State for the benefit of present and future generations."

Further particulars of the objects of the *Fish Resources Management Act 1994* are provided in Attachment 2.

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[3] Fletcher, W.J. *Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture Within Western Australia.* Fisheries Management Paper No. 157. Department of Fisheries Western Australia. March 2002.

4.1.2 National Ecologically Sustainable Development Objectives for Sustainable Fisheries

All Australian Governments have agreed the National Strategy on Ecologically Sustainable Development [4] and the national objectives for sustainable fisheries. The national Ecologically Sustainable Development objectives aim to:

- protect biodiversity and maintain essential ecological processes;
- enhance individual and community well being by following the path of economic development that safeguards the welfare of current and future generations; and
- provide effective legal, institutional and economic frameworks for ecologically sustainable development.[5]

The Commonwealth Government controls the issue of export permits for all fishery products from Australia. Under the *Commonwealth Environmental Protection and Biodiversity and Conservation Act 1999* and the National Ecologically Sustainable Development objectives, the Commonwealth Government specifies fish stock and ecological sustainability criteria that must be met before an export permit will be granted for a fishery's products. The Exmouth Gulf Managed Fishery has been assessed on two occasions against those sustainability criteria by initially the Commonwealth Department of Environment and Heritage and later the Department of Environment and Water Resources. The Department of Environment and Water Resources assessment concluded that the fisheries were managed in an ecologically sustainable way and recommended that the export of species taken in the fisheries should be exempt from the export permit requirements of Part 13A of the *Environmental Protection and Biodiversity and Conservation Act 1999* with the exemptions to be reviewed in February 2013.[6] The current permit requires certain conditions to be met by the management agency during the term of the permit.

4.1.3 Integrated Fisheries Management

Integrated Fisheries Management is a State Government initiative aimed at ensuring Western Australia's fisheries continue to be managed sustainably into the future. [7]In essence, this approach involves the setting of a total catch or harvest level in each fishery that allows for an ecologically sustainable level of fishing. A formal process is then used to allocate explicit catch shares to each of the principal user groups.

The catch harvested by each user group must be monitored and managed within their allocated catch level over periods of between five and ten years. Community requirements for the use of fish stocks will change over longer timeframes (i.e., across decades), therefore a politically acceptable means of reallocating catch shares between sectors is necessary in order for the Integrated Fisheries Management strategy to succeed. Allocation can be achieved by either administrative or market based mechanisms. Details of the Guiding Principles for Integrated Fisheries Management are provided in Attachment 3.

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[4] Commonwealth of Australia. *The National Strategy for Ecologically Sustainable Development,* Australian Government Print Service, Canberra, 1992.
[5] Ibid.
[6] Environment Australia (now DEWHA), *Assessment of the Western Australian Exmouth Gulf Prawn Managed Fishery*, December 2002.
[7] *Report to the Minister for Agriculture, Forestry and Fisheries by the Integrated Fisheries Management Review Committee*. Fisheries Management Paper No. 165, Department of Fisheries, November 2002.

At present, there are no direct recreational or indigenous resource sharing issues for prawns in the Exmouth Gulf Prawn Managed Fisheries. As these species inhabit waters of considerable depth and exposure, and specialised gear and large boats are required to capture them neither, group utilises these resources. However, there are resource-sharing issues in relation to the potential impact on some by-product species that are caught by recreational and commercial fishers (e.g., blue swimmer crabs, squid, cuttlefish and selected fin fish species). Trawling has the potential to impact the ecology (particularly benthic habitat) of Exmouth Gulf. In turn, this may affect other fisheries in the region. Therefore by catch species must also be considered when proposing resource-sharing options.

4.1.4 The outcomes to be delivered by the co-management body

1. Sustainability objectives for the fishery to be achieved:

    (i) Maintenance of breeding stock of brown tiger, king, endeavour, coral and banana prawns.

    (ii) By-product species listed within specified catch range.

    (iii) Desirable maintenance of spatial extent of trawling in the area of the fishery (as defined) no greater than 40% level.

2. Export permit for the fishery under the EPBC Act continue to be maintained and renewed under Part 13A of that Act.

3. Any conditions required to be met from the current Export permit issued for the fishery to be met as prescribed (refer to current permit).

4. The option of gaining approval of the fishery under a third party non-government environmental accreditation program to be achieved by 2013 (e.g. Marine Stewardship Council or other suitable similar program).

5. Ongoing effective governance of the fishery that incorporates at least two meetings annually involving stakeholder representation; adopts procedures and processes which provides transparency to decision making, the opportunity to receive and consider external comment on the management performance of the fishery. This information to be web site based to enable on-going access to records of meetings, annual reporting of management outcomes, performance reporting on the sustainability of the fishery including summary reporting on functions and outcomes of research, compliance, data management, administration and associated financial records.

6. Formal annual reporting of performance of the fishery to the Chief Executive Officer of the Western Australian Department of Fisheries. Any significant risks for the fishery or for ongoing performance in the management of the fishery to be identified along with matters raised under item 5. The report also needs to cover issues of significance and status on broad objectives covering economic, social and environmental values for the fishery.

7. Detailed independent management performance audit of the fishery against ESD principles and as necessary third party environmental accreditation criteria, one year prior to re-accreditation. This performance audit needs to cover all aspects of principles applied under Ecological Sustainable Development but specifically requirements to be met under the EPBC Act for

ongoing export approval and any third party accreditation. As a minimum the audit needs to report on status and performance of the fishery and associated impacts under headings of fishery sustainability, by product, by catch, habitat, protected, endangered and threatened species and the ecosystem.

8. To the extent practical guidance on all issues impacting on the fishery and its performance to be undertaken within a risk based framework in a management outcome based philosophy of continuous improvement.

9. Any management decision requiring changes to a management plan, notice or regulation under the FRMA for this fishery to be lodged with the Chief Executive Officer of the Department of Fisheries, together with a background explanatory memorandum to the Minister for Fisheries setting down the grounds for change, the amending legislation and a certificate from a legal draftsperson purporting the competency of the change and that the amendment was within power and purpose.

10. That all data collected on the fishery, research reports and compliance breaches in the fishery under the FRMA collected by the management body or appointed agents to provide services to the management body under these guidelines, to be lodged with the Chief Executive Officer of the Western Australian Department of Fisheries in a timely cost effective agreed means. (The precise details need negotiation outside the guidelines.)[8]

4.1.5 Identifying issues and assessing risks

The issues that needed to be addressed for the ecological sustainability of individual fisheries in Western Australia were determined at stakeholder workshops, using the process set out in the Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture Within Western Australia (Fletcher, 2002)[9]. A risk assessment process was then undertaken to objectively determine which of the identified issues was of sufficient significance to warrant specific management actions and hence a report on performance. Where significant risks or special circumstances were identified in a fishery, operational objectives, performance indicators and measures[10] and management responses were developed to address these issues.

The ecological and governance objectives and performance indicators and measures are well developed and detailed for many of Western Australian fisheries as high quality fishery information is available on which to base them. However, less detailed information is available for the social and economic components of most fisheries and as a result the objectives in these areas are not developed to the same level as those for the ecological and governance areas. Social and economic objectives will be continually developed and refined in consultation with stakeholders.

It must be recognised that due to the constraints imposed by bioregional, state and/or national Ecologically Sustainable Development objectives, as well as the

[8] The Department of Fisheries is the custodian of long term data sets collected for purposes of fisheries management under the FRMA 1994.

[9] Fletcher, W.J. Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture Within Western Australia. Fisheries Management Paper No. 157, Department of Fisheries Western Australia, March 2002.

[10] See Table 1 of this Ministerial Policy Guideline for the definition of Operating Objectives and Performance Indicators and Measures.

significant interactions that can occur between some operating objectives, it may not be possible to maximise/optimise a particular objective for a fishery in either the short, medium or long term.

For instance ecological objectives to ensure biodiversity, ecological stability and fish stock sustainability may not allow the maximum economic return to be made from a fishery even in the long term. In a similar way an ecological objective to increase a fishery's breeding stock to what is considered a safer level (i.e., a non-urgent breeding stock improvement situation) may not be achievable in the short term, because it needs to be undertaken over a longer timeframe to allow the businesses that directly or indirectly depend on the fishery to make adjustments to survive economically.

The management body is required to maintain a risk register and identify strategies to manage the significant risks or special circumstances which could impact on the fishery. These risks need to be reviewed at least annually by the management body and reported upon to the Department of Fisheries as part of their reporting responsibilities under the instrument of delegation.

4.1.6 Other policy and strategic documents

The other policy and strategic documents that the co-management body should take into account when performing their functions in relation to the management of fisheries in Western Australia, and in particular the Exmouth Gulf Prawn Managed Fishery, include: the current Ecologically Sustainable Development report for the fishery; Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture Within Western Australia; Integrated Fisheries Management Review

Committee Report; State of the Fisheries Reports, Department of Fisheries' Annual Reports; Exmouth Gulf Prawn Managed Fishery Management Plan. A detailed list is provided in Attachment 4.

4.1.7 Bioregions for Fisheries Management

To help achieve fisheries Ecologically Sustainable Development and Integrated Fisheries Management objectives Western Australia has been divided into four `bioregions'. These bioregions correspond to the four major oceanographic regions around the State's coastline:

- Northern Coastal
- Gascoyne Coast
- West Coast
- South Coast

These regions reflect the major marine ecological and habitat types and approximate the State Government's regional development boundaries. Broad Ecologically Sustainable Development and Integrated Fisheries Management policies and strategies have, or will be, developed for each bioregion.

Some fish species or fisheries will be confined within a single bioregion while others will overlap between bioregions. Where a fish species or fishery overlaps a number of bioregions it will be necessary to take the Ecologically Sustainable Development and Integrated Fisheries Management policy and management objectives

for each bioregion into account in the management of that species or fishery.

4.2 Management objectives for Western Australian fisheries

The Ecologically Sustainable Development management objectives for sustainable fisheries in Western Australia are the broad Ecologically Sustainable Development objectives that apply to all the State's fisheries. The objectives reflect the objects of the Act and the objectives of the National Ecologically Sustainable Development framework for sustainable fisheries and the major goals that flow from these. The management objectives set out below (drawn from Fletcher 2002[11]) cover the ecological, social, economic and governance components of fisheries Ecologically Sustainable Development.

4.2.1 Ecological objectives

The management arrangements for the fishery should:

- maintain the stocks of all retained species within ecologically viable levels by avoiding overfishing and optimizing long-term yields;
- ensure that fishing does not threaten biodiversity and habitat via the removal of non-retained species (including protected species and ecological communities) and maintain the take of non-retained species at ecologically viable stock levels;
- ensure that the impacts of the fishery on functional ecological relationships, habitat and processes are maintained within acceptable limits; and
- Recognize the impacts of the environment on fisheries from both natural and non-fishery human induced sources (e.g., coastal developments) and incorporate these within management responses.

4.2.2 Social objectives

The management arrangements for the fishery should:

- contribute to community, regional and national well being, lifestyle and cultural needs of current and future generations; and
- Satisfy traditional (customary) fishing needs, cultural/economic development and sustainability of indigenous communities.

4.2.3 Economic objectives

The management arrangements for the fishery should:

- endeavour to maximize net economic returns for current and future generations from the sustainable use of the resource;
- be efficient and effective both in terms of the Department of Fisheries' costs and
- any costs imposed on fishers by the management arrangements; and
- ensure that the Government's cost recovery objectives are achieved.

4.2.4 Governance objectives

The management arrangements for the fishery should:

- ensure that the Ecologically Sustainable Development principles are underpinned by legal, institutional, economic and policy frameworks;
- be capable of responding to issues, be anticipatory and proactive as well as being capable of taking remedial action;

[11] Fletcher, W.J. Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture within Western Australia. Fisheries Management Paper No. 157, Department of Fisheries Western Australia, March 2002.

- provide a resource allocation' process to maximise/optimise community benefits; and
- provide transparency to stakeholders on management decisions

4.3 The Exmouth Gulf Managed Fishery

For general information on prawns in Western Australia and Exmouth Gulf in particular refer to the Exmouth Gulf Prawn Fishery Ecologically Sustainable Development Report No.1 [12].

4.3.1 Description of the Exmouth Gulf Prawn Managed Fishery

The Exmouth Gulf Prawn Managed Fishery as defined in the Exmouth Gulf Prawn Management Plan 1989 exists within:

"the waters of the Indian Ocean and Exmouth Gulf below high water mark lying south of a line starting at Point Murat and extending northeasterly to the southern extremity of South Muiron island; thence generally northeasterly along the southeastern shore of that Island to its easternmost extremity,- thence northeasterly to the southern extremity of North Muiron island; thence northeasterly and northerly along the south eastern and eastern shores of that Island to its northern extremity; thence easterly to the northern extremity of Serrurier Island (also as Long Island); thence generally southerly along the western shores of that Island to its southern extremity; thence southeasterly to the southern extremity of Locker Island and then due south to the mainland" (Figure 1).

The Fishery *is* further divided up into four distinct fishing areas, Areas A, B, C and D and a permanently closed nursery area. Details of the current boundaries of the fishery, areas where trawling occurs and areas closed to trawling in the Exmouth Gulf Prawn Managed Fishery are provided in Figure 1. Some of the closures (marked with a *) may change from time to time as a result: of changes to the management arrangements for these fisheries and the availability of further or new information.

The trawling effort of the Exmouth Gulf Fishery is focused in deeper central and north-western sectors of Exmouth Gulf. Owing to the predominantly mud and sand habitats of the trawl grounds, the trawl gear has relatively little physical impact.

[12] ESD reports are available in hard copy from the Department of Fisheries and from its Website at www.fish.wa.gov.au

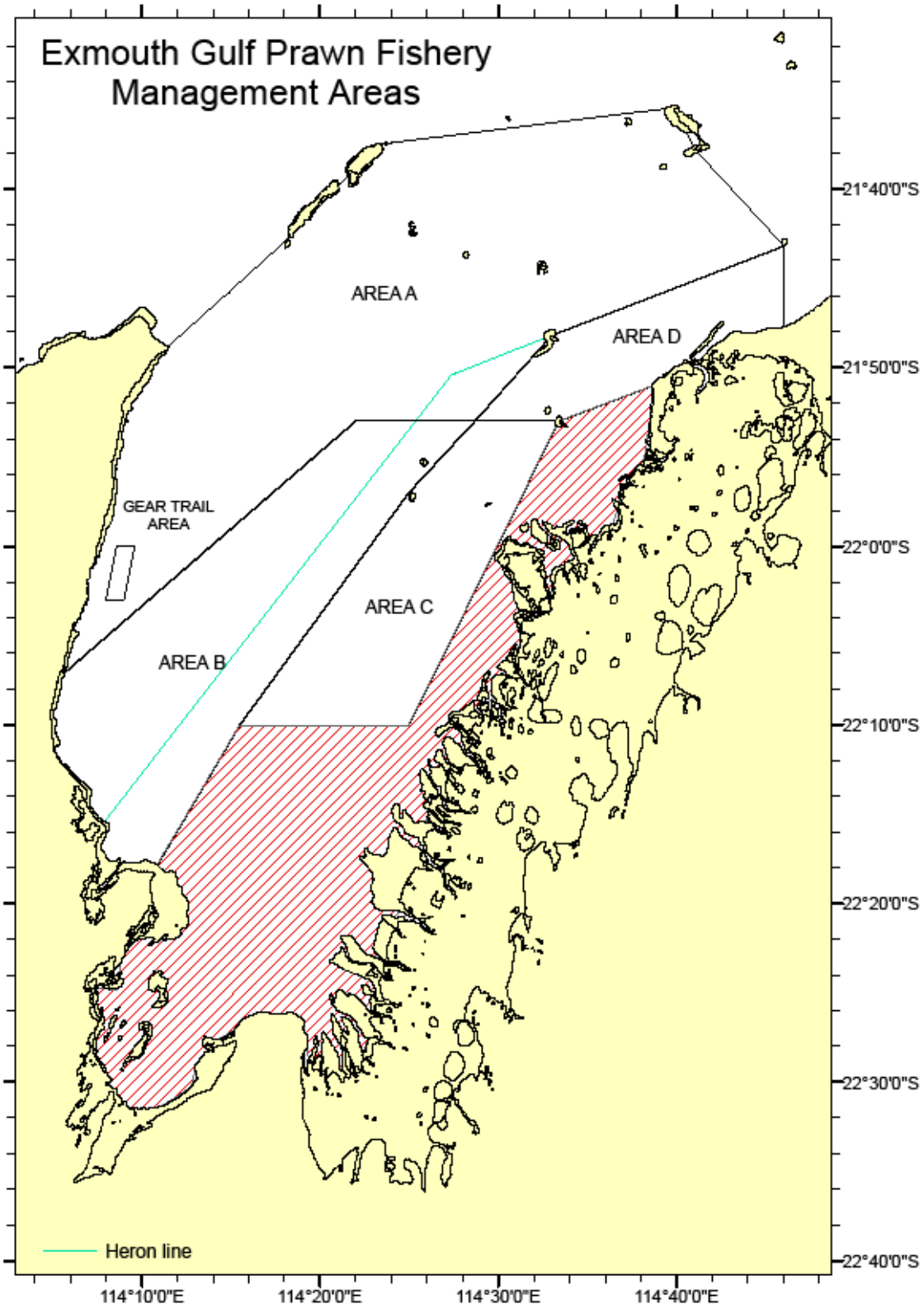

Figure 1. Major features of the Exmouth Gulf Prawn Managed Fishery
Note: Areas B, C and D vary in their opening times depending on survey results. The Heron closure line is also used from time to time to give effect to temporary closures to fishing.

4.3.2 The Exmouth Gulf Prawn Stocks

There are four main species of prawns targeted in the Exmouth Gulf Prawn Managed Fishery:

- Western King Prawn, *Penaeus latisulcatus;*
- Brown Tiger Prawn, *Penaeus esculentus;*
- Endeavour prawn, *Metapenaeus endeavouri;* and
- Banana prawns *Penaeus merguiensis.*

4.4 Operating objectives and performance indicators, and measures for the Exmouth Gulf Prawn Managed Fishery

It is important to note that the objectives and performance indicators for this fishery may be subject to change depending on the status of the fish stocks and the operating environment of the fishery. When such changes are made this Ministerial Policy Guideline will be revised and reissued in accordance with the requirements of the Act.

Performance indicators and measures are tighter and more detailed for Tiger prawns because they have been shown to be susceptible to recruitment overfishing. For further details of the status of the prawn stocks and any recent management action, refer to:

- *Exmouth Gulf Prawn Managed Fishery Management Plan and associated management arrangements* [13]
- *Exmouth Gulf Prawn Fishery Ecologically Sustainable Development Report No. 1;* and
- *The current State of the Fisheries Report.*
- *Application to the Department of the Environment and Water Resources on the Exmouth Gulf Prawn Managed Fishery, October 2007*
- *Department of Environment, Water Resources, Heritage and the Arts, Exmouth Gulf Prawn Managed Fishery, Annual ESD Audit August 2008*

4.4.1 Ecological operating objectives and performance indicators and measures

Operating Objective No. 1 – Spawning Stock Maintenance

To maintain the prawn stocks at or above a level that minimizes the risk of recruitment overfishing.

Performance Indicators (PI) and Measures (PM)

Tiger prawns

[13] When visiting http://www.fish.wa.gov.au/docs/pub/LegislationHow/gateway. php?0006 readers should tick the disclaimer box at the bottom of the page. Once this link is opened the Prawn Management plans can be accessed.

PI:

- The level of tiger prawn spawning stock present during the main spawning season, as measured by the spawning index [14] (that is, the standardised catch per unit of fishing effort).

PM:

- The spawning index should be above 8–10 kg (25kg/hr based on 6 fathom nets quad gear) of Tiger prawns per hour of trawling [15].
- Recruitment index from surveys in the following year reviewing SRR.

Western King, Endeavour, Banana and Coral prawns

PI:

- Breeding stock level is measured indirectly through the total catch level within the traditional effort levels of the fishery.

PM:

- With the fishery operating within traditional effort levels, the total catch should be within the following ranges:

    - Western King prawn – 350 to 500 tonnes;
    - Endeavour prawns – 120 to 300 tonnes;
    - Banana prawns – 0 to 2 tonnes in low rainfall years, and 10 to 60 tonnes in years of significant rainfall [16] ; and
    - Coral prawns – 20 to 100 tonnes

If total catches of any of the targeted prawn species fall outside their corresponding catch range it will trigger a review of why the catch was lower or higher.

Operating Objective No. 2 – Bycatch – Provision of Refuges

To ensure that there are adequate refuge areas provided within Exmouth Gulf, for species that are caught and discarded by the EGP fishery

Adequate refuges could be in the form of high densities of animals over a small area e.g. for species with a narrow habitat preference, or low densities over a large area for species which are naturally rare in nature.

Performance Indicators and Measures

PI:

- Distribution of bycatch species within and outside the trawl grounds.

PM:

- The major species of bycatch that are found in significant numbers outside of the trawled areas. [17]

[14] Exmouth Gulf Prawn Fishery. ESD Report Series No. 1. Department of Fisheries, p35-41, 2005.

[15] 8-10kg per hour of trawling (equating to 16kg/hr by twin gear rigs (7.5 fathom nets) and 25kg/hr for quad rigs (6 fathom nets) is an index of the 'safe' level of spawning stock estimated to have been present in the 1970s, and is based on a standardised (i.e. trawl gear (net and otter board size)) catch per unit of effort.

[16] Low levels of Banana prawns occur in Exmouth Gulf sporadically, but abundance is significantly increased in years when environmental conditions, i.e. higher than average rainfall in the region during the key period (summer December to March inclusive) occurs.

[17] Surveys of bycatch species will be undertaken every 5-10 years to determine if significant numbers of these species exist outside the trawl area.

Operating Objective No. 3 - Discarding fish

To minimise the level of discards, which in turn will minimise the possible changes in trophic structure for provisioning.

Performance Indicators and Measures

PI:

- The amount of discards per fishing season will be monitored as a measure of the performance against the objective.
- Changes in the current range of bycatch to catch ratios (or ratios once full implementation of bycatch reduction devices is complete) may indicate either changes in the behaviour of the fishers in targeting prawns; abundance of bycatch species and/or prawns; or lack of quality control with respects to the functioning of bycatch reduction devices.

PM:

- Reductions in the amount of discards from pre-introduction of bycatch reduction devices levels.
- Reduction in the ratio of discards to target catch relative to the levels obtained pro-introduction of bycatch reduction devices. [18]

Operating Objective No. 4 - Trawl Impact on Mud/Sand Habitat

To maintain an acceptable level of impact in the mud/sand habitat in Exmouth Gulf

Performance Indicators and Measures

PI:

- The percentage of the mud/sand habitat of the Exmouth Gulf region that is trawled.
- The area trawled has not significantly shifted between years.

PM:

- Evidence of no significant changes from a comparison of grounds trawled by the fleet during the most recent year with known habitat and areas of past fishing operations over the last decade.
- Area of mud/sand habitat available for trawling needs to be kept to no greater than 40% of the total mud/sand habitat in Exmouth Gulf. [19]

4.4.2 Social operating objective and Performance Indicators and Measures

Operating Objective No. 1 - Well Being of Industry Participants

Management arrangements do not unduly inhibit the fishing industry's capacity to have regard for the occupational health, safety and wellbeing of participants directly involved in the industry.

[18] Bycatch is monitored by observer programs and occasional surveys.

[19] About 35% (1475.5 km^2) of the total waters in Exmouth Gulf have been extensively trawled.

Performance Indicators and Measures

PI:

- The industry is satisfied that the management arrangements do not impact adversely on occupational health and safety issues.

PM:

- A majority of industry members (licensees, skippers, crew, processors) surveyed via telephone/face to face meetings/postal questionnaire are satisfied with the management arrangements in relation to occupational health and safety issues.

Operating Objective No. 2 - Well Being of Local Community

Management arrangements aim to minimise the impact on the fishing industry's capacity to have regard for the well being of the local community.

Performance Indicators and Measures

PI:

- Acceptance of the prawn fishing industry by the local community.

PM:

- The level and nature of complaints received by the Department of Fisheries from the local community regarding the prawn fishing industry.

Operating Objective No. 3 - Impacts on Other Fisheries Resources

The management arrangements for the Fishery aim to minimise the negative impact of the prawn fishery on the adjacent recreational, commercial or customary fisheries.

Performance Indicators and Measures

PI:

- Acceptance of the prawn fishery management arrangements by the stakeholders in adjacent fisheries.

PM:

- The level and nature of complaints received by the Department or Minister for Fisheries from stakeholders in adjacent fisheries.

Operating Objective No. 4 - Impacts on Other Stakeholders

The management arrangements for the Fishery aim to minimise the negative impact of the prawn fishery on the adjacent stakeholders

Performance Indicators and Measures

PI:

- Acceptance of the prawn fishery management arrangements by the stakeholders.

PM:

- The level and nature of complaints received by the Department or Minister for Fisheries from stakeholders.

4.4.3 Economic operating objectives and performance indicators and measures Operating Objective No. 1– Optimise Economic Returns

Management arrangements for the Exmouth Gulf Prawn Managed Fishery optimise economic returns over the long term.

Performance Indicators and Measures

PI:

- The extent to which management minimizes the constraints imposed on fishers' inputs while still ensuring ecologically sustainable fishing practices are maintained.

PM:

- The management framework provides for industry and Department of Fisheries research scientists to decide upon fishing times and strategies that optimize catch levels and size/species composition of the catch for prevailing or forecast market conditions;
- The future management framework shall provide operators with flexibility in boat size and net configurations;[20] however, the principle is to have a standardized fleet.
- The majority of the industry supports the management arrangements (as relevant).
- A mechanism is in place to resolve disputes between industry sectors (as relevant).

4.4.4 Governance operating objectives and performance indicators and measures

Operating Objective No. 1– Management effectiveness

To ensure that the commercial catch of all prawns is maintained within an acceptable range on an annual basis

Performance Indicators and Measures

PI:

- The total catch compared to the historical acceptable range for all four penaeid prawns in the Exmouth Gulf Prawn Fishery

PM:

- Under current fishing effort levels, the catch projections for this fishery are that the total catch of penaeids should be within the range of 771–1276 tonnes.

If the total combined catch falls outside the catch range it will trigger a review of why the total catch was lower or higher.

Operating Objective No. 2 – Management arrangements

The Department of Fisheries, in consultation with the Management Committee and other stakeholders, maintains a watching brief on the management plan, related legislation, regulations and arrangements to ensure it remains relevant and aligned with the fishery's management objectives.

[20] Flexibility in boat size and net configurations is not included in the management plan and currently operates under a Ministerial Exemption.

Performance Indicators and Measures

PI:

- The extent to which the management plan and supporting documentation addresses each of the issues and has appropriate objectives, indicators and performance measures, along with the planned management responses.

PM:

- The Minister is to be advised in 100% of cases where management arrangements are no longer aligned with, or support the objectives of, and performance indicators and measures for the fishery.

Operating Objective No. 3 - Compliance

To have appropriate levels of compliance, which give Government and industry confidence that, the management arrangements are being effective.

Performance Indicators and Measures

PI:

- The levels of compliance with the legislation and subordinate management arrangements, including the management plan for the fishery.
- Degree of understanding of rules governing operation of the fishery by licensees and the broader fishing community.

PM:

- A compliance plan, developed jointly by industry and the Department of Fisheries, and level of inspection is used to determine the level of compliance delivery, based on a "risk assessment" of the compliance issues.

Operating Objective No. 4 - Consultation

To administer a consultation process that is in accordance with the requirements of the FRMA and the Exmouth Gulf Prawn Fishery Management Plan, allowing for the best possible advice from all relevant stakeholders to be provided to the decision maker (management body) in a timely manner.

Performance Indicators and Measures

PI:

- The management body conforms to the consultation processes required by the Act, the Exmouth Gulf Prawn Fishery management plan, other management arrangements and Government policy on stakeholder consultation; and
- The level to which stakeholders consider that they have been adequately and appropriately consulted.

PM:

- The management body meets 100% of their obligations to the consultation processes.
- The level and nature of complaint received by the Department or Minister for Fisheries from stakeholders who feel they have been inadequately or inappropriately consulted.

Operating Objective No. 5 – Assessments and reviews

To report annually to the Minister for Fisheries for Western Australia and the community on the status of the Exmouth Gulf Prawn Managed Fishery.

Performance Indicators and Measures

PI:

- The extent to which external bodies with knowledge of or interest in the management of fisheries resources have access to relevant material; and
- Level of acceptance within the community

PM:

- General acceptance of the management system by the community.
- Level of acceptance by the Minister and the Chief Executive Officer of the Department of Fisheries in the overall performance by the management body in meeting, delivering and reporting management outcomes.

Operating Objective No. 6 - Cost Recovery

Ensure that the State Government's targets for the recovery of costs in relation to the management of the fisheries are reached.

Performance Indicators and Measures:

PI:

- The extent of recovery of costs associated with the Government policy on fisheries management costs.

PM:

- All of the Government's annual fisheries management cost recovery policies are achieved.

5. Tables

5.1 Table 1. Definitions of terms used in this Guideline

TERM	DEFINITION
Catch rate	The catch of fish per unit of fishing effort. For example the number or weight of fish caught per hour or day, or the number/weight caught per trap lift, or the weight caught per hour of trawling.
Ecologically Sustainable Development (ESD)	Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, *now* Ecologically Sustainable Development, Council of Australian Governments, 1992).
Effective fishing effort	A measure of the fishing effort that takes into account changes in the efficiency of a fishing operation. For instance more powerful engines enabling faster trawling speed, larger nets, use of Global Positioning Systems to locate fish or fish habitat, colour echo sounders, etc.
Exploitation and exploitation Rate	Refers to the taking of fish and the rate at which they are taken.
Fishery	Fishery is defined under the Act as one or more stocks or parts of stocks of fish that can be treated as a unit for the purposes of conservation or management; and a class of fishing activities in respect of those stocks or parts of stocks of fish.
Fishing effort	The measure of effort a fisher puts in to catch the fish. This can be defined as number of fishing days, or hours fished per day, length of net used per fishing day, number of pot lifts per day or year, area swept by a trawl net in a given period of time, etc.
Governance	The total process by which the fishery is managed. This includes — the *Fish Resources Management Act 1994* and *Fish Resources Management Regulations 1995,* policy guidelines, and consultation and negotiation with the Advisory Committees and other stakeholders (for example — commercial and recreational fishers and conservation, indigenous and community groups).
Integrated Fisheries Management	Integrated fisheries management involves the setting of a total catch or harvest level in each fishery that allows for an ecologically sustainable level of fishing. A formal process is then used to allocate explicit catch shares for use by each of the principal user groups. A portion of the resource could also be allocated for conservation purposes.

	DEFINITION
Operating Objectives	The operating objectives of a fishery are specific to the management of that fishery. They sit under the general objectives and guiding principles of fisheries management. Operating objectives have a direct and practical interpretation in the context of the management of a fishery. The fishery's performance against an operational objective has to be measurable and auditable.
Performance Indicators and measures	A performance indicator or measure is the aspect of the fishery that has been chosen to track or measure the performance of the fishery against its operating objective.
Recruitment overfishing	When there are insufficient fish reaching breeding size or age to maintain the stock at an ecologically sustainable level.
Prawns	Western King prawn, *Penaeus latisulcatus,* Brown Tiger prawn, *Penaeus esculentus,* Endeavour prawn, *Metapenaeus endeavour!*, and Banana prawn, *Panaeus merguiensis*
Spawning stock (biomass)	The sexually mature part of a fish stock or population.
Stakeholder	Person, group or other entity, which the Government acknowledges has an interest in the fish resources of the State.
Stock (fish stock)	A population of fish that is biologically separate or is considered separate for the purposes of fisheries management.
Sustainable fishery	A fishery that is managed in accordance with the principles of ecologically sustainable development.

6. ATTACHMENTS

6.1 Attachment 1 - Instrument of Co-management Delegation

(to be attached at the time of issue to the guidelines)

6.2 Attachment 2 - Objectives of the Fish Resources Management Act 1994

Section 3 of the *Fish Resources Management Act 1994* sets out the Objectives of the Act (referred to as the Objects).

Section 3 object

The objects of this Act are to conserve, develop and share the fish resources of the State for the benefit of present and future generations.

In particular, this Act has the following objects —

- to conserve fish and protect their environment;
- to ensure that the exploitation of fish resources is carried out in a sustainable manner;
- to enable the management of fishing, aquaculture and associated industries and aquatic eco-tourism;
- to foster the development of commercial and recreational fishing and aquaculture;
- to achieve the optimum economic, social and other benefits from the use of fish resources;
- to enable the allocation of fish resources between users of those resources;
- to provide for the control of foreign interests in fishing, aquaculture and associated industries;
- to enable the management of fish habitat protection areas and the Abrolhos Islands reserve.

6.3 Attachment 3 - Guiding principles for Integrated Fisheries Management

The following guiding principles are the basis for integrated fisheries management in Western Australia:[21]

- Fish resources are a common property resource managed by the Government for the benefit of present and future generations.
- Sustainability is paramount and ecological requirements must be considered in the determination of appropriate harvest levels.
- Decisions must be made on the best available information and where this information is uncertain, unreliable, inadequate or not available, a precautionary approach must be adopted to manage risk to fish stocks, marine communities and the environment. The absence of, or any uncertainty in, information should not be used as a reason for delaying or failing to make a decision.
- A harvest level, that incorporates total mortality, should be set for each fishery and the allocation designated for use by each group should be made explicit.
- Allocations to user groups should account for the total mortality on fish resources resulting from the activities of each group, including by catch and mortality of released fish.
- The total harvest across all user groups should not exceed the prescribed harvest level. If this occurs, steps consistent with the impacts of each user group should be taken to reduce the take to a level that does not compromise future sustainability.
- Appropriate management structures and processes should be introduced to manage each user group within their prescribed allocation. These should incorporate pre-determined actions that are invoked if that group's catch increases above its allocation.
- Allocation decisions should aim to achieve the optimal benefit to the Western Australian community from the use of fish stocks and take account of economic, social, cultural and environmental factors. Realistically, this will take time to achieve and the implementation of these objectives is likely to be incremental over time.
- Allocations to user groups should generally, be made on a proportional basis to account for natural variations in fish populations. This general principle should not however preclude alternative arrangements in a fishery where priority access for a particular user group(s) may be determined. It should remain open to government policy to determine the priority use of fish resources where there is a clear case to do so.
- Management arrangements must provide users with the opportunity to access their allocation. There should be a limited capacity for transferring allocations unutilised by a sector for that sector's use in future years, provided the outcome does not affect resource sustainability.

More specific principles to provide further guidance around allocation decisions may be established where necessary for particular fisheries.

[21] *Report to the Minister for Agriculture, Forestry and Fisheries by the Integrated Fisheries Management Review Committee.* Fisheries Management Paper No. 165. Department of Fisheries Western Australia. November 2002.

6.4 Attachment 4 - Fisheries Policy and Strategic Documents

Policy and strategic documents that provide important information that the Co-management body should take into consideration in the performance of its functions with regard to the management of the Exmouth Gulf Prawn Managed Fishery in Western Australia include but are not limited to the most current Ecologically Sustainable Development reports for the individual fisheries that have been prepared by the Department of Fisheries. These reports should be referred to for further background regarding the objectives for sustainable fisheries management in Western Australia. In particular see the Exmouth Gulf Prawn Fishery Ecologically Sustainable Development Report series No. I and 2 respectively (or the current version). Copies of the reports can be obtained from the Department of Fisheries or from its website at www.fish.wa.gov.au

- Fletcher, W.J. Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture Within Western Australia. Fisheries Management Paper No. 157. Department of Fisheries Western Australia. March 2002.
- State of the Fisheries Reports. These should be referred to for the measures of a fishery's performance indicators and an overall assessment of a fishery's performance against its operational objectives.
- Exmouth Gulf Managed Fishery Management Plan. This describes most of the rules that govern commercial prawn trawling in Exmouth Gulf.
- Department of Fisheries Annual Report. This publication contains the Department's Vision and Mission, its operating environment (strategic issues, trends, etc), reports on operations, financial statements and performance indicators.
- *Fish Protection Measures. To Ensure Fish for the Future.* Fisheries Management Paper 141. Department of Fisheries Western Australia. June 2001
- A Five-Year Management Strategy for Recreational Fishing in the Gascoyne. Final Report of the Gascoyne Recreational Fishing Working Group. Fisheries Management Paper No. 154. Department of Fisheries Western Australia. September 2001. This report provides the overall strategy for recreational fishing in the Gascoyne region.
- *Fisheries Environmental Management Plan for the Gascoyne Region – Draft Report.* Fisheries Management Paper No. 142. Department of Fisheries Western Australia. June 2002.
- *Report to the Minister for Agriculture, Forestry and Fisheries by the Integrated Fisheries Management Review Committee.* Fisheries Management Paper No. 165. Department of Fisheries Western Australia. November 2002. This report provides recommendations on the major issues concerning integrated fisheries management in Western Australia.
- Department of Fisheries Strategic Plan 2004–2008. Department of Fisheries September 2004.
- W.A. Department of Fisheries. –Application to the Department of the Environment and Water Resources on the Exmouth Gulf Prawn Fishery", October 2007.
- Department of Environment and Water Resources, Heritage and the Arts. –Exmouth Gulf Prawn Managed Fishery Annual ESD Audit." August 2008.

6.5 Attachment 5 - Best Practice set of management arrangements

The "Best Practice" [22] set of management arrangements for the Exmouth Gulf Prawn Managed Fishery should include the following:

- An explicit description of the management unit.
- The criteria to operate in the fishery, the manner of fishing, the fishing season, fishing zones, license renewals, transfers and cancellations, fishers offences and major provisions and process for amending the management plan.
- Descriptions of the stocks, their habitats and the fishing activities.
- Clear measurable operational objectives and their associated performance indicators and measures.
- Clearly defined rules, including what actions are to be taken if performance measures are triggered.
- Economic and social characteristics of the groups involved in the fishery.
- Management and regulatory details for the implementation of the actual management arrangements, including the management plan.
- The reporting and assessment arrangements.
- How and when reviews of the plan will occur, including consultation mechanisms.
- A synopsis of how each of the Ecologically Sustainable Development issues is being addressed.

See the latest Exmouth Gulf Prawn Managed Fishery Ecologically Sustainable Development reports for details of their current performance against the ten points of "Best Practice" management arrangements. These can be found on the Department of Fisheries website at: www.fish.wa.gov.au

[22] Fletcher, W.J. *Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture Within Western Australia*. Fisheries Management Paper No. 157, Department of Fisheries Western Australia, March 2002, p38-39.

APPENDIX 5 – Net Present Value Analysis

(NPV estimates for: Option (1), Increased Co-management; and Option (2), Self management inclusive of environmental accreditation)

Equations (1) and (2) as reported in section 6.4 incorporate the direct equation values from table 6.3. The most likely scenario takes into account higher costs for maintaining environmental accreditation (estimated at $100,000 annually) and some mitigation of risks for the survey data quality by occasional field visits to Exmouth by the Research Division staff of the Department of Fisheries (reduces savings of field surveys by about $20,000 annually). Obviously every additional field trip undertaken by research staff will directly impact on savings that can be achieved.

Mitigating for occasional field visits reduces the level of savings relative to the status quo to $84,000 (see equation 1(a) below)

Break even of the most likely scenario for self management relative to the current level of the costs to industry under current cost recovery (2008/2009 budget) changes the third term of equation (2) below from $78,000 to -$42,000 ($78,000–$120,000). Setting NPV = 0 and solving for change in average price premium provides an indicative estimate of the change in price premium warranted across the total catch for Option (2) from environmental accreditation to equate with the existing cost to industry under status quo cost recovery arrangements.

The equations shown below provide indicative sensitivity analyses of progressing with self management and environmental third party accreditation for different values of initial implementation and ongoing additional expenses for industry to maintain accreditation.

The average price premiums required to be achieved for each scenario presented are as follows:

Increased Co-management (Option 1)	Not Applicable
Self management plus environmental accreditation (Option 2)	
Baseline	No premium required
Optimistic	0.6c/kg
Most Likely	2.6c/kg
Conservative	6.8c/kg

The NPV of Options 1 and 2 are presented, assuming a 10 cent per kg price premium accruing from environmental accreditation for Option 2:

Increased Co-management (Option 1)	
Baseline	$0.85M
Most Likely	$0.68M
Self management plus environmental accreditation (Option 2)	
Baseline	$1.31M
Optimistic	$0.63M
Most Likely	$0.50M
Conservative	$0.22M

A similar analysis shows that average price premiums of 3.2c per kg, 13.2, 15.2 and 19.4c per kg are required progressively for Option 2 from the base case through to the conservative case to generate the same NPV as Option 1 base case.

Co-management scenarios

Baseline (equation 1)

$$NPV = -40{,}000 + \sum_{i=1}^{n} \frac{104{,}000}{(1+r)^i}$$

Most Likely (equation 1a)

$$NPV = -40{,}000 + \sum_{i=1}^{n} \frac{84{,}000}{(1+r)^i}$$

Self management scenarios[1]

Baseline (equation 2)

$$NPV = -80{,}000 + \sum_{i=1}^{2} \frac{104{,}000}{(1+r)^i} + \sum_{i=3}^{n} \frac{78{,}000}{(1+r)^i} + \sum_{i=3}^{n} \frac{AverageYield * \Delta price}{(1+r)^i}$$

Optimistic (equation 3)

$$NPV = -80{,}000 + \sum_{i=1}^{2} \frac{104{,}000}{(1+r)^i} + \sum_{i=3}^{n} \frac{(78{,}000 - 100{,}000)}{(1+r)^i} + \sum_{i=3}^{n} \frac{AverageYield * \Delta price}{(1+r)^i}$$

Most Likely (equation 4)

$$NPV = -80{,}000 + \sum_{i=1}^{2} \frac{104{,}000}{(1+r)^i} + \sum_{i=3}^{n} \frac{(78{,}000 - 120{,}000)}{(1+r)^i} + \sum_{i=3}^{n} \frac{AverageYield * \Delta price}{(1+r)^i}$$

Conservative (equation 5)

$$NPV = -160{,}000 + \sum_{i=1}^{2} \frac{104{,}000}{(1+r)^i} + \sum_{i=3}^{n} \frac{(78{,}000 - 150{,}000)}{(1+r)^i} + \sum_{i=3}^{n} \frac{AverageYield * \Delta price}{(1+r)^i}$$

[1] Equations 2 to 5 progressively increase the costs of implementing and maintaining third party environmental accreditation by amendment to the values in terms 1 and 3 respectively.